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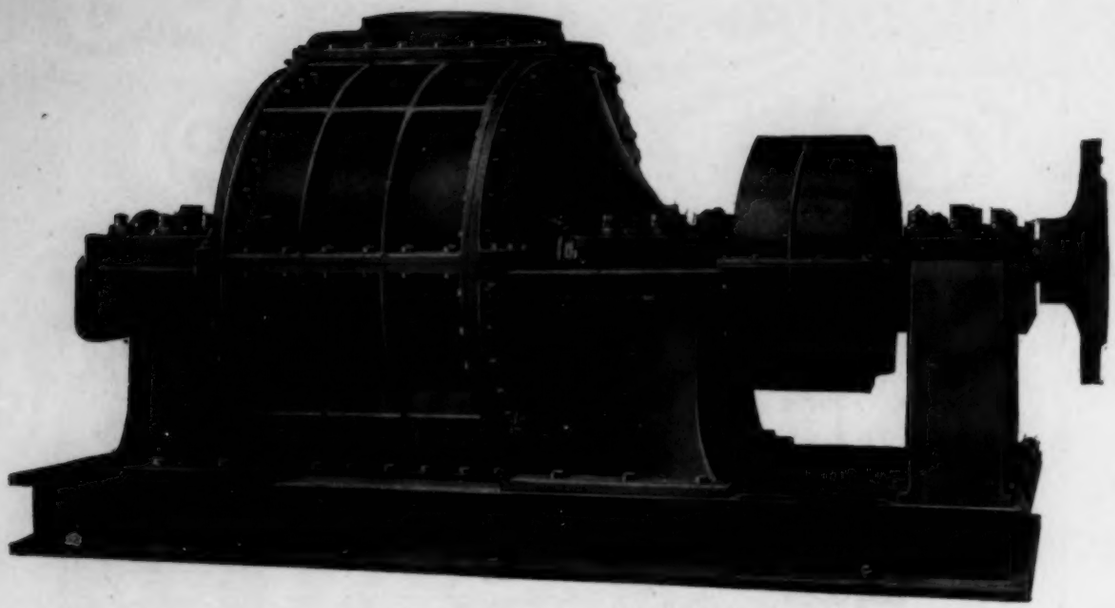

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THE CONNERSVILLE BLOWER CO.

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929 Monadnock Bldg.

CONNERSVILLE, IND.

NEW YORK
114 Liberty St.

THE IRON TRADE REVIEW

Vol. LXII Cleveland, June 13, 1918 *No. 24*

Industry Bows to Broadened Rule

Complete Federal Domination of Distribution and Virtually of Production is Quickly and Quietly Effective—Resumption of Free Market Conditions Dependent Wholly on Pleasure and Will of Government—War Needs Supreme

WASHINGTON'S dominion of the iron and steel industry is complete. The final and historic chapter written by the war industries board June 6 is in full effect. Not a ton of mill or furnace product now is moving except in strict accord with federal rule or dictate. The whole industry within a few days has been formally and firmly planted on an absolute war basis. The small remaining vestige of a free market has been wiped out.

There has been some hesitancy, but no confusion. The gradual and sequential steps by which the industry has been brought to the concluding stage has made little readjustment necessary. Some recasting of individual policies of distribution and operation as have been required, have been quickly made. Producers on their part have received the new conditions with something of relief. They have accepted the agreement entered into by a joint committee of their number and of the war industries board as establishing a definite and all-inclusive plan of procedure for the period of the war. Consumers already convinced that their security lay only in their identification with essential production find their position virtually unchanged.

Responsibility is Centered

The literal significance of the agreement between the producers and the government is that it formally transfers from the manufacturer into the hands of the war industries board and the steel director the full responsibility for the shaping of production and distribution. The really new feature of this control is the function of the steel director to issue licenses or permits to producers for the disposal or delivery of any surplus that may remain after priority or nonpriority orders, falling within a specified list of essential purposes, shall have been satisfied. Whether this provision actually denotes that some tonnage in time will be made available to nonwar consumption is by no means assured. The list of nonpriority purposes which the government has set ahead of any nonwar distribution is very comprehensive. Furthermore, it is clearly indicated that it may be extended from time to time. This, in effect, gives the government an elastic control over such excess production as may appear from time to time. On this point it is significant that some large producers report that practically 100 per cent of their recent inquiries excluding export tonnage, are included within preferential list.

War Orders Keep Rising

In the meantime the approximately 17,000,000 tons of direct and indirect war orders filed with the steel director have been considerably enlarged and the total is growing steadily. In all discussions of war tonnage it is pointed out by producers, however, that time of delivery and not mere volume is the real essence. The 13,000,000 tons of shipping for which the capacity will be available next year will represent probably 3,500,000 tons of ship plates. The mills should have no difficulty in supplying this demand, especially with 1,300,000 tons of new capacity about to come in. The crux of the whole problem of war steel supply manifestly turns on the uncertainty as to what will be needed, caused by the ever-changing demands of the great conflict.

Iron Survey Aids Control

The pig iron situation promises to be little affected. The movement, dating back some weeks, to put that industry on a genuinely war basis now is well advanced. The survey of production and consumption now under way will harmonize well with the extended government regulations. Producers already are making use of the data obtained from their consumers through the questionnaires recently circulated to guide them in their shipments. New business largely is in the form of allocations. The new tonnage requested from the furnaces by the government this week is large.

JUNE 13, 1918

THE IRON TRADE REVIEW

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Spring Meeting American Society of Mechanical Engineers Alive With Important Suggestions and Ideas of Direct War Value—Anti-Efficiency Legislation Denounced—War's Technical Problems Discussed.

An Historic Agreement

HAD the government with one sweep of its sovereignty seized the iron and steel plants of the country for the purposes of war it could not have effected a more complete control of the industry than has been brought about by the memorable events of the past week.

By the agreement entered into by a joint committee of the war industries board and of the American Iron and Steel institute and now finally ratified by the war industries board not a ton of iron and steel is to be made or marketed unless it has first been formally vised by the proper government officials or unless its use is of such a character as to fall within the restricted classes officially set forth. The effect of this agreement is to give the government a hand in every transaction involving the products of the mills and furnaces. Heretofore its exercised jurisdiction has extended only to the requirements of war and of those lines of consumption which the government has considered of an essential character. Henceforth whatever vestige of an open market or of normal distribution there shall remain, will be by the sufferance and in accordance with the direction of the federal authorities through a system of licenses or permits to be issued upon application, by the steel director, who is backed by the powers recently vested in the war industries board.

This licensing or permit plan is the important and cardinal feature for the ordinary consumer of iron and steel of the new war control system. It effectually closes the final gap in the scheme of distribution under war conditions through which material may have passed to the open market at the will and preference of the producer. When and whether any steel will be subject to open sale now rests with the decision and judgment of those charged with the responsibility of supplying the essential requirements of iron and steel under war conditions. The individual producer thereby will be spared the perplexity and embarrassment of deciding himself between the conflicting claims of consumers for such surplus as may come into his possession from time to time. The government has assumed the full burden not only of seeing that the available material is placed to best advantage under present conditions but that it shall have first call upon anything that is within the capacity of the mills to produce. In substance, it will direct both production and distribution.

The question whether at any time there shall be a surplus of iron and steel rests wholly with the government. Direct and indirect war needs will not be the only determining factors. Before any surplus shall be available, the agreement provides a list of nonpriority uses shall be served. It is clearly intimated that this nonpriority but preferential list may be revised from time to time. There is nothing to prevent the government from extending it, at will, and thereby absorbing any surplus that seems likely to become available. This emphasizes the close and complete control which may be exercised over distribution at all times.

The new government plan, finally is a measure of conservation. It has become increasingly clear neither the government officials themselves nor the steel producers have any positive idea how much tonnage eventually will be required by the war and when. The almost daily-changing demands of the great conflict are beyond human calculation. That being true, the part of wisdom has been that the full potentiality of the iron and steel industry shall be constantly at the call of the country and that every need, no matter how great, shall be met with the least delay. The new plan virtually insures this. War has been given precedence over every other consideration. In a matter so vital, an oversupply is the best insurance for the whole country. Whether in the end, there is to be a marketable surplus of iron and steel is to be settled only after essential demands of every possible character have been fully considered and satisfied as war measures. Considering the gravity of the occasion, the individual consumer of iron and steel could not expect that the government would stop short of anything but the most complete precautions.

Technical Meetings Essential

IN these days when every human activity must meet the single test, "Will it help to win the war?" a consideration of the functions of technical and engineering society meetings in relation to the national emergency is perhaps in order. When the war broke out last year a number of business and technical organizations took the stand that meetings should be greatly curtailed or abandoned, and in two or three notable instances prominent and long established conventions actually were canceled. Later President Wilson came out in favor of meetings as usual, on account of the potential value of such gatherings in the great work of perfecting our war organization.

A measure of the usefulness of the engineering societies and business organizations in wartime may be found in the recent spring meeting of the American Society of Mechanical Engineers at Worcester, Mass., which is reported in detail elsewhere in this issue.

Out of thirty-four titles on the program, including many purely technical papers, eighteen were on subjects relating directly to the war and perhaps ten others were of indirect war importance. Furthermore these papers and addresses contained numerous suggestions and ideas of tangible value on such important matters as emergency technical war training, labor turnover, fuel conservation, munitions manufacture, textile production, etc. Throughout the meeting the utmost liberality in disclosing manufacturing methods, the development of which in some cases had cost thousands of dollars, was evident. One manufacturer described in detail a method of drawing reverse tapers for detonating cases, thus doing away with expensive time-consuming machining operations. Another told at length how his factory was transformed from the production of luxuries to war necessities. A third took up the technical phases of air propulsion. Others contributed equally important bits of information. And if, as military experts claim, the war will be won by the side that finally mobilizes the most effective war-making machinery in overwhelming quantity, backed by a 100 per cent efficient organization in and behind the lines, "how to" information of the nature just described is invaluable to American manufacturers at the present time. Furnishing such information lies completely and solely within the province of engineering societies and the business press. Both are making good.

Universities as War Centers

THIS is the season of the year when our universities are holding commencement exercises. More significance attaches to them at present than ever before in the history of the nation. The value of the new product of our institutions of higher training cannot be overstated at this time. Already many seniors are in the military service. Instructions in the professions, sciences and arts have been intensified so that the classes are better equipped than heretofore to train minds in chemistry, mathematics, engineering, medicine, in the devising of munitions, in helping to plan campaigns, in figuring out gun ranges and on through the list.

They produce the sort of material, in the shape of trained minds, that is required in this day to conduct a war of superlative science and trained skill on a successful basis. If the work that universities have done and are doing in the way of preparing men for the military service in the numerous branches were reduced to a written report after hostilities have ended, it would supply one of the most inspiring and fascinating volumes dealing with the war.

Encourage Proved Efficiency

"Trust-busting", once a popular sport in the United States, seems to be falling into disrepute these latter days, and even courts, supposed to be cold and distant to the sentiments of the populace, appear to have been warmed somewhat by the change in general sentiment.

Recently the United States Supreme Court decided the suit for the dissolution of the United Shoe Machinery Co. by refusing to order the dissolution. In favor of these combinations the court has the following to say:

"The company indeed has magnitude, but it is at once the result and cause of efficiency and the charge that it has been oppressively used is not sustained. Patrons are given the benefits of improvements made by the company and new machines are substituted for the old ones without proportionate charge. There has been a saving as well in the cost of the manufacture of shoes. These are some of the results of the organization of the United company." The court is seemingly governed by common sense as well as by interpretation of the law when it says: "The idea is repellant that so complete an instrumentality should be dismantled and its concentration and efficiency lost."

Another instance of the value of large aggregations of capital and industrial ability is the United States Steel Corp., which has been and is rendering invaluable service in the prosecution of the war. Much efficiency now available would have been lacking without the aid of the men at its head. The two latest enterprises for the production of weapons is under its management and the government is not asked to pay a cent for the service. Only a large corporation could have done this service.

It would be to the good of public policy as well as an act of fair-minded justice if the suit for dissolution of the Steel corporation should be allowed to drop, in view of the service so freely rendered. Similar action in other suits against other alleged unlawful combinations of industry where the factor of proved efficiency is so clear would represent one offset of national benefit against the terrible cost of war.

Iron and Steel Prices

Corrected to Wednesday Noon

SCRAP, WAREHOUSE AND IRON ORE PRICES ON PAGE 1526

PIG IRON

Bessemer, valley	$35.20
Bessemer, Pittsburgh	36.30
Basic, Pittsburgh	33.10
Basic, eastern Pa.	32.00
Basic, Buffalo	32.00
Malleable, Pittsburgh	34.60
Malleable, Chicago	33.50
Malleable, Philadelphia	34.00 to 37.50
Malleable, Buffalo	33.50

GOVERNMENT SCHEDULE

1.75 to 2.25 silicon (No. 2 foundry, No. 2 plain, and No. 3 southern), $33 furnace base.

2.25 to 2.75 silicon (No. 2X, No. 1 Northern foundry, and No. 2 southern), base plus 50c.

2.75 to 3.25 silicon (No. 1X, No. 2, soft), base plus $1.50.

Over 3.25 silicon, $34.50, plus $1.00 for each ½ per cent of silicon.

No. 1X, Phila.	35.25 to 35.50
No. 2 foundry, Pittsburgh	34.10
No. 2 foundry, Cleveland	34.10
No. 2 foundry, Ironton	33.00
No. 1 foundry, Chicago	33.50
No. 2 foundry, Chicago	33.00
No. 2X foundry, Phila.	34.25 to 34.50
No. 2X foundry, N. J. tide	34.25 to 34.50
No. 2X foundry, Buffalo	33.50
No. 2 plain, Philadelphia	33.75 to 34.00
No. 2 plain, N. J. tide	33.75 to 34.00
No. 2 southern Birmingham	33.00 to 33.50
No. 2 southern, Cincinnati	36.40
No. 2 southern, Chicago	37.50
No. 2 southern, Phila. del.	38.30 to 39.40
No. 2 southern, Cleveland	37.50
No. 2 southern, Boston	39.50
No. 2 southern, St. Louis	35.90
Virginia, No. 2X, furnace	33.50
Virginia, No. 2X, Phila.	36.77
Virginia, No. 2X, Jersey City	37.02
Virginia, No. 2X, Boston	37.27
Gray forge, Pittsburgh	32.95
Silveries, 8 per cent, furnace	45.50
Silveries, 8 per cent, Chicago	48.50
Low phos. standard, Phila.	55.00 to 56.00
Low phos. Lebanon, furnace	50.00 to 52.00
Low phos., Pittsburgh	53.00
Charcoal, Superior, Chicago	37.25 to 37.50
Charcoal, Superior, Buffalo	37.50
Charcoal, southern to 2 per cent silicon	43.00

COKE

(At the ovens)

Connellsville furnace	**$6.00**
Connellsville foundry	**7.00**
Pocahontas furnace	8.00
Pocahontas foundry	**8.00**
New River foundry	8.00
New River furnace	8.00
Wise county furnace	**6.00**
Wise county foundry	**7.00**

FERROALLOYS

Ferromanganese, 70 per cent delivered	250.00
Spiegel, 16 per cent fur., spot.	70.00 to 75.00
Spiegel, contracts, furnace.	75.00
Ferrocarbon titanium, carloads, maker's plant	200.00
Ferrosilicon, 50 per cent, second quarter, Pitts.	150.00 to 160.00
Ferrosilicon, 50 per cent, Pitts., remainder of 1918	150.00 to 155.00
Bessemer ferrosilicon, 10 per cent.	55.00
Bessemer ferrosilicon, 11 per cent.	58.30
Bessemer ferrosilicon, 12 per cent.	61.60

Ferrosilicon prices at Ashland, Ky., Jackson and New Straitsville, O.

SEMIFINISHED MATERIAL

BILLETS AND BLOOMS

Open-hearth, Pittsburgh	$47.50
Open-hearth, Philadelphia	50.50
Open-hearth, Youngstown	47.50
Bessemer, Pittsburgh	47.50
Bessemer, Youngstown	47.50
Forging, Pittsburgh	60.00
Forging, Philadelphia	63.00

SHEET BARS

Open-hearth, Pittsburgh	$51.00
Open-hearth, Youngstown	51.00
Bessemer, Pittsburgh	51.00
Bessemer, Youngstown	51.00

SLABS

Pittsburgh and Youngstown.	$50.00

WIRE RODS AND SKELP

Wire rods, Pittsburgh	$57.00
Grooved skelp, Pittsburgh	2.90c
Sheared skelp, Pittsburgh	3.25c

SHAPES, PLATES AND BARS

(In cents per pound)

Structural shapes, Pitts.	3.00c
Structural shapes, Phila.	3.185c
Structural shapes, N. Y.	3.195c
Structural shapes, Chgo.	3.00c
Tank plates, Chicago	3.25c
Tank plates, Pittsburgh	3.25c
Tank plates, Philadelphia	3.435c
Tank plates, New York	3.445c
Bars, soft steel, Pittsburgh	2.90c
Bars, soft steel, Chicago	2.90c
Bars, soft steel, New York	3.095c
Bars, soft steel, Phila.	3.085c
Bar iron, Chicago	3.50c
Bar iron, Phila.	3.50c to 3.685c
Bar iron, Cleveland	3.64c to 3.70c
Bar iron, New York	3.50c to 3.695c
Bar iron, Pittsburgh	3.50c
Hard steel bars ,Chicago	3.00c

RAILS, TRACK MATERIAL

Angle bars, Pittsburgh base.	3.25c
Angle bars, Chicago base	3.25c
Standard bessemer rails, mill	$55.00
Stand. open-hearth rails, mill	57.00
Light rails, 25 to 45, mill	3.00c
Relaying rails, light, St. L.	60.00 to 67.00
Spikes, railroad, Pitts.	3.90c
Track bolts, Pittsburgh	4.90c
Track bolts, Chicago	5.115c
Tie plates, Chicago	3.25c

WIRE PRODUCTS

(Per 100 lbs. to jobbers; retailers 5c more)

Wire nails, Pittsburgh	$3.50
Coated nails, Pittsburgh	3.45
Plain wire, Pittsburgh	3.25
Galvanized wire, Pittsburgh.	3.95
Polished staples, Pittsburgh.	3.65
Galvanized staples, Pbgh.	4.35
Barb wire, painted, Pitts.	3.65
Barb wire, galvanized, Pitts.	4.35
Cut nails, Pittsburgh	4.00

CHAIN, PILING, STRIP STEEL

(In cents per pound)

Chain, ⅜ in. proof coil, Pitts.	8.00c
Sheet piling, base, Pitts.	4.00c to 5.00c

Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100 inch and heavier, base per 100 pounds, 6.50c.

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SHEETS

(In cents per pound)

SHEET MILL BLACK

No. 28, open-hearth, Pitts.	5.00c
No. 28, bessemer, Pitts.	5.00c
No. 28, open-hearth, Chi.	5.215c

TIN MILL BLACK

No. 28, open-hearth, Pitts.	5.00c
No. 28, bessemer, Pitts.	5.00c

GALVANIZED

No. 28, open-hearth, Pitts.	6.25c
No. 28, bessemer, Pitts.	6.25c
No. 28, open-hearth, Chi.	6.465c

BLUE ANNEALED

No. 10, open-hearth, Pitts.	4.25c
No. 10, bessemer, Pitts.	4.25c
No. 10, open-hearth, Chi.	4.465c
No. 10, open-hearth, Phila.	4.435c

TIN PLATE

(Per 100 lb. box)

Tin plate, coke base, Pitts.	$7.75

IRON AND STEEL PIPE

Base Pittsburgh

Base, Pittsburgh	Black Per cent off	Galv. Per cent off
⅛ to 3 in., butt, steel	51	37½
¼ to 3 in., butt, iron	33	17

BOILER TUBES

Steel, 3½ to 4½ inches, l. c. l.	30
Iron, 3½ to 4½ inches, c. l.	12½

CAST IRON WATER PIPE

(Class B Pipe)

Class A pipe is $1 higher than Class B.	
Four-inch, Chicago	63.35
Six-inch and over, Chicago	60.35
Four-inch, New York	64.35
Six-inch and over, N. Y.	61.35
Four-inch, Birmingham	58.00
Six-in. and over, Birmingham	55.00

HOOPS, BANDS, SHAFTING

Hoops, Pittsburgh	**3.50c**
Bands, Pittsburgh	3.50c
Hot rolled strip steel, Pitts.	3.50c
Shafting, Pitts., carloads	**17 off to list**
Cotton ties, May, per bundle	$1.91

RIVETS

Structural rivets, Pittsburgh.	4.40c
Boiler rivets, Pittsburgh	4.50c
Rivets ⅞ in. & small., Pitts.	50 and 10 off

NUTS AND BOLTS

(Delivered within 20-cent freight radius)

CARRIAGE BOLTS

(⅜ x 6 inches, smaller and shorter)

Rolled thread	50–5 off
Cut thread	40–10–5 off
Larger and longer	40 off

MACHINE BOLTS

(⅜ x 4 inches, hot pressed nuts)

Rolled thread	50–10–5 off
Cut thread	50–5 off
Larger and longer	40–10 off
Cold pressed semifinished hexagon nuts ⅜ in. and larger	60–10–10 off
Cold pressed semifinished hexagon nuts ⅞ in. and smaller	70–5 off
Gimlet and cone point lag screws	50–10 off

NUTS

Hot pressed, square blank	2.50c off
Hot pressed, square tapped	2.30c off
Hot pressed, hexagon blank	2.30c off
Hot pressed, hexagon tapped	2.10c off
Cold pressed, square blank	2.25c off
Cold pressed, square tapped	2.00c off
Cold pressed, hexagon blank	2.25c off
Cold pressed, hexagon tapped	2.00c off

Prices Present and Past

(Yesterday, a month ago, three months ago and a year ago)

Quotation, on leading products June 12, average for May, 1918, average for March, 1918, and average for June, 1917. Prices are those ruling in the largest percentage of sales at the dates named.

	Prices June 12, 1918	Average prices May, 1918	March, 1918	June, 1917
Bessemer pig iron, Pittsburgh	$36.30	$36.15	$37.25	$55.20
Basic pig iron, Pittsburgh	33.10	32.95	33.95	50.20
*No. 2 Foundry pig iron, Pitts.	34.10	33.95	33.95	51.02
*No. 2, Foundry pig iron, Chi.	33.00	33.00	33.00	51.00
Lake Superior charcoal, Chicago	37.50	37.50	37.50	51.80
Malleable, valley	33.50	33.50	33.50	50.07
Malleable, Chicago	33.50	33.50	33.50	50.50
**Southern, No. 2, Birmingham.	33.50	33.50	33.50	35.75
*Southern Ohio No. 2, Ironton	33.00	33.00	33.00	38.60
Basic, eastern Pa.	32.00	32.00	33.00	46.37
**No. 2X Virginia, furnace	33.50	33.50	33.50	46.50
**No. 2X foundry, Philadelphia	34.25	34.25	34.25	47.50
Ferromanganese, 70%, delivered	250.00	250.00	250.00	431.25
Bessemer billets, Pittsburgh	47.50	47.50	47.50	93.75
Bessemer sheet bars, Pittsburgh	51.00	51.00	51.00	101.25
Open-hearth sheet bars, Pitts.	51.00	51.00	51.00	101.25
Open-hearth billets, Pitts.	47.50	47.50	47.50	93.75
Steel bars, Pittsburgh	2.90	2.90	2.90	3.62
Steel bars, Chicago	2.90	2.90	2.90	4.50
Iron bars, Philadelphia	3.50	3.50	3.50	4.26

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.

	Prices June 12, 1918	Average prices May, 1918	March, 1918	June, 1917
Iron bars, Cleveland	$3.64	3.64	3.64	3.50
Iron bars, Chicago mill	3.50	3.50	3.50	4.00
Beams, Chicago	3.00	3.00	3.00	4.63
Beams, Pittsburgh	3.00	3.00	3.00	4.00
Beams, Philadelphia	3.185	3.18	3.18	4.66
Tank plates, Pittsburgh	3.25	3.25	3.25	4.50
Tank plates, Chicago	3.25	3.25	3.25	7.92
Tank plates, Philadelphia	3.435	3.43	3.43	9.66
Sheets, blk., No. 28, Pitts.	5.00	5.00	5.00	8.13
Sheets, blue anld., No. 10, Pitts.	4.25	4.25	4.25	7.57
Sheets, galv., No. 28, Pitts.	6.25	6.25	6.25	9.95
Wire nails, Pittsburgh	3.50	3.50	3.50	3.62
Connellsville furnace coke	6.00	6.00	6.00	11.12
Connellsville foundry coke	7.00	7.00	7.00	11.18
Heavy melting steel, Pitts.	29.00	29.00	30.00	40.00
Heavy melting steel, eastern Pa.	28.50	28.50	29.50	36.62
Heavy melting steel, Chicago	29.00	28.90	30.00	37.00
No. 1 wrought, eastern Pa.	34.00	34.00	35.00	47.87
No. 1 wrought, Chicago	33.50	33.50	35.00	46.75
Rerolling rails, Chicago	34.00	34.00	35.00	46.00

(For Additional Prices See Page 1526)

Iron Survey Aids New Control Plan

Data on Consuming Position of Individual Melters Helps Producers to Follow Extended Government Regulations Over Distribution—Some Users Refuse to Make Returns—Large Tonnages Up For Allocation

Philadelphia, June 11.—The impression prevails here that last week's announcement of the war industries board leaves the pig iron situation practically unchanged. As to the provision that arrangements to ship requirements not included under the preference list must be made with the steel director, the furnaces are confused. Until they receive specific instructions with respect to the procedure with latter orders, they will follow the policy of filling their contracts and giving preference to direct and indirect government requirements. Incidentally very few pig iron orders have priority certificates. It is learned that large tonnages of foundry have been sold by several eastern and Virginia makers and one southern furnace for forward shipment with provision that government orders and allocations will receive preference. Week's business included allocations of round tonnages of foundry iron. It is understood 180,000 tons of basic which the war industries board has been trying to place of which 120,000 tons are for Great Britain and remainder for domestic use, will be allocated in the south. In one case a furnace making basic has been instructed not to sell any more off iron until government designates the buyer. Leonard Pickitt, in charge of low phosphorus distribution, held a meeting of low phoshorus producers last week and now is compiling new figures showing the expected production of this grade, the tonnage sold for government purposes and the tonnage remaining unsold.

Open Orders Placed

Boston, June 10.—Many outlets exist for large tonnages of iron in this territory if the metal were available or the furnaces were at all interested. As neither of these latter conditions obtain, orders continue to pile up, for inquiries are no longer resorted as a means of locating supplies. The users have gotten into the habit of letting agents and brokers know actually what they could use and placing to the order on a good-till-cancelled basis. Every office locally will be found to have orders aggregating a big tonnage. In certain instances these figure up to 50,000 tons. These are largely for foundry iron. Whether these orders represent actual needs or have been placed as a measure of safety against possible nondelivery against contracts cannot be determined. Meanwhile, there are very satisfactory deliveries of iron to plants engaged on war orders who can supply the special necessary permit. It is now safe to say that arrearages among Alabama and northern furnaces have been pretty well made up and Virginia iron is moving with much more freedom than recently.

Conditions Unchanged in East

New York, June 10.—The assumption by the government of control of the iron and steel industry has not yet become apparent in visible developments in the pig iron market in this district. So far, pig iron sellers have not received any instructions as to how their selling policy will be effected by this move. The present situation, in fact, is exactly the same as in previous weeks; the furnace activities are restricted to making deliveries on contracts and no new sales are reported. Practically all

of the consumers in this district have filled in and returned their pig iron questionnaires. Only a few consumers still are to be heard from, and these are expected to report without further delay.

Refuse to Make Returns

Pittsburgh, June 11.—Refusal to fill out questionnaires in connection with the pig iron survey has been made by some consumers. These instances are rare, but have caused considerable surprise to the furnaces serving them. The failure of these consumers to report tonnages of iron they have on hand, their requirements and the use of the iron has been reported to the war industries board for such action as it may see fit. The committee on ore, pig iron and lake transportation has previously served notice that those not reporting would be considered in the nonessential class and be entitled to receive iron only in accordance with that class and this probably will mean a severe curtailment of supplies in some directions. Those who have declined to fill out the questionnaires say they do not consider it the business of anyone except themselves as to iron they have on hand and the use to which it is being put so long as they are satisfactorily filling government orders. Some of them are known to be engaged in war work of the most essential character. The survey is about completed, although delayed. The survey still shows that about 35 to 40 per cent per cent of the tonnage of foundry iron and 10 to 15 per cent of steelmaking iron is being used in nonessential manufacture and can be diverted to direct and indirect government work. Many producers are confident there will be enough iron for all essential purposes with the probability that there will be considerable tonnage available for purely commercial users. The questionnaire has brought about some interesting sidelights. Some buyers have reported they will not require all the iron they had contracted for and have asked the furnaces to divert the surplus to others engaged in essential work.

Consumers Well Covered

Buffalo, June 11.—Replies to questionnaires sent out by producers in this district show that the consumers are fairly well covered—better than had been supposed. This condition applies to consumers of the eastern district particularly. South of the eastern district it is not known that the same conditions prevail. About 50 per cent of the questionnaires have been turned in, in this district. Meantime, producers are going ahead and filling war requirements as they come up where they can. No other business is being handled and there is no selling of iron. Some makers here believe optimistically that there will be sufficient iron eventually to go round. The demand keeps up. Everybody wants a little iron and many want considerable tonnages, but there is no new business being handled, except now and then a carload of off-grade.

Date Is Helpful

Cleveland, June 11.—Information relative to the war status of consumers which has been obtained by the questionnaires recently distributed, is proving very helpful to producers in following the stricter regulations of distribution which have been promulgated by the war industries board. It is expected that this data from consumers will be of increasing value as a guidance in following the new plan. The collection of this information will fit in nicely with the new plan and accordingly every effort now is being made to complete the canvass. Returns of the questionnaires, while they have been speeded up somewhat, still are only partially complete and some time still will be required before they are all in. Government requests for the allocation of tonnage for various consumers have been heavy. These include about 20,000 tons of basic, 12,000 to 15,000 tons of bessemer, 12,000 to 15,000 tons of low phosphorus and 20,000 tons of foundry iron for various deliveries. A lot of 14,000 tons of basic for Monessen, Pa., has been allotted to valley producers. Allocations include 1250 tons of No. 2X foundry for a Detroit shipyard; 500 tons for a Baltimore consumer; 350 tons of foundry for a Buffalo fabricator and 200 tons of malleable and foundry for a Milwaukee shop.

The Interstate Foundry Co., Cleveland, is in the market for 9000 tons of iron, to include 6000 northern foundry, 1500 southern foundry, and 1500 of 8 per cent silvery. This company is manufacturing hand grenades under a contract which is said to cover about 30,000,000 castings. Gray iron grenades, numbering about 100,000,000 are expected to be contracted for soon in the Cleveland district.

Await Definite Orders

Chicago, June 11.—Pig iron producers are most interested at present in the interpretation to be put on the recent order taking over control of distribution by the war industries board. Inasmuch as iron must be shipped as made producers are continuing to distribute their product as before, using their best judgment as to where it should go, until definite instructions are available to guide. In the meantime consumers are being notified to start efforts to obtain priority certificates to cover their iron, so that delay may be avoided when matters are lined up by the industries board. Practically no selling is being done and producers are somewhat puzzled to know what can be done with such off iron as is produced from time to time. This has been disposed of readily in the past and it is a question now whether it should be sold as usual or await an interpretation of the recent orders covering such products. Consumers also are apprehensive of the effect of this order, those without war orders believing they will be cut off from supply in great degree and perhaps entirely. Efforts to obtain priority certifiicates are almost universal preparatory to the application of the new order of things.

Restrictions Halt Sales

Cincinnati, June 10.—Unaccustomed restrictions in the sale of both foundry and basic iron have caused a halt in all new transactions. The furnaces are not willing to take on any business just now, and they are awaiting some intimation from the government about disposing of iron that is available for the last half. A few sales of off-grade iron are made each day, but the tonnage of this is growing smaller. A difference of opinion is expressed as to the amount of foundry iron that can be had for last half shipment. There is none as to the supply of basic, which is practically all absorbed for this year by consumers doing war work. A few southern furnaces will have some iron to dispose of later. They still are not making contracts, however, no matter how urgent the demand may be from melters who wish to cover for sufficient iron to run them through the remainder of the year.

Consumers' Position More Difficult

St. Louis, June 8.—Inquiries for all varieties of pig iron this week have been enormous. Nothing daunted at frequently-reiterated statement by producers and agents that they have nothing to sell, users of iron for nonwar purposes are making known their needs right along in the hope that perhaps some stray tonnage may be made available. Many of the inquiries are urgent, and every possible influence is being brought to bear to secure material. Many of the in-

quirers specify they are prepared to furnish B priority certificate, but even this qualification has failed signally in getting them any iron. The representative of an important eastern producer reports new inquiries this week aggregating between 5000 and 6000 tons from the St. Louis district, and demands on other agencies have been proportionately heavy.

Government Control Felt

Birmingham, Ala., June 11.—Southern furnaces are rigidly carrying out instructions of the government in pig iron. They are shipping on priority orders and are selling only where there is no conflict with the needs of essential industry. Government orders are being accepted and 2000 tons will be shipped shortly to Panama. Federal railroad directors are giving the iron and steel manufacturers of this district every consideration and as a consequence there is further cutting down of old orders. Furnace stocks of iron are being steadily reduced.

Ferro Buying

Continued Despite Doubt Over Imports—Spiegel Shows More Strength

New York, June 10.—About 500 tons of English ferromanganese have been sold during the past week for future delivery. The time of shipment, however, was not specified, since importers are uncertain as to when they will be able to get British export and American import licenses. In fact, they have no assurance that the American licenses will be granted. However, the buyers felt reasonably sure that the supply of English ferromanganese cannot be entirely cut off, and that tonnages will continue to be exported more or less regularly. Therefore, they showed no hesitation in closing.

Market is Dull

Pittsburgh, June 11. — Dullness characterizes the market for ferroalloys. Small lots of 70 per cent ferromanganese are being sold at $250, delivered. Inquiry for 16 per cent spiegeleisen is quiet. The spot market seems to be quotable from $70 to $75, while contract tonnages appear at $70. Some makers of 50 per cent ferrosilicon are sold up till Sept. 1, and are not taking new business. Spot tonnages are quoted at $165 to $175, delivered, and it is reported that recently offerings were made and accepted at $162, delivered, for prompt shipment. Contract tonnages are quoted at $155, delivered.

Coke Contracts Expiring

Many Consumers Will Be On Lower Cost Basis July 1—Some Spot Selling is Being Done

Pittsburgh, June 11.—Large tonnages of coke are represented in contracts which will expire with the end of the current month. These contracts, when made before the government fixed prices for fuel, carry prices ranging from $7 to $9 and upward in most instances, it is understood. Provided prices of coke are not increased July 1, these consumers will pay less from the period for their coke and in this direction their costs in making pig iron will be lower. This advantage, however, will be partially offset by the increased freight rates which become operative on June 25, when the carrying charge from ovens in the Connellsville region to Pittsburgh will advance from 90 cents to $1.20 a ton. It is understood that in all advances the new rates are to take a decimal ending in the cipher so that if a flat increase of 25 per cent would mean a rate of $1.25, it will be moved up to $1.30, and so on. A number of sellers whose contracts with consumers are about to expire probably will not renew them but will continue to supply their regular customers insofar as possible. Light offerings of both furnace and foundry coke have developed and have been taken readily. Larger tonnages are expected to be available in the open market soon. The Monongahela railroad car supply continues to be 100 per cent in the coke region and that on the Pennsylvania has been maintained at or only slightly below that average. The supply exceeds the loading capacity, which has shown some improvement. Consumers appear to be receiving ample shipments. Production for the week ending June 1 totaled 343,020 tons as compared with 340,100 tons for the preceding week, according to *The Connellsville Courier*.

Submarines Delay Shipments

Boston, June 10.—A steady movement of coke from the local by-product ovens continues and because there are signs of a fuel shortage, shipments are being anticipated to a considerable extent by fully a month.

Foundries are well covered for the balance of this year, but are not much better than 50 per cent covered for the first half of next. The production of coal is not on such a scale as to create ease and confidence in the matter of future supplies of coke. Furthermore, much of the coal for coking comes north by water and as a result of the activity of the submarines off the coast, the natural inclination of ship commanders is to dodge into convenient harbors on the way. This, of course, means delays and unless the menace is overcome, it is not improbable that rail shipments will have to be resorted to as a measure to safety.

Production Is Better

Cincinnati, June 10.—According to reports from Wise county and Pocahontas districts, that are authentic, the production of both furnace and foundry coke is holding up better than was anticipated. The employes seemingly have been putting in more time than heretofore, but there is some complaint from both the New River and Connellsville fields.

Situation is Easier

St. Louis, June 8.—Improvement in the car supply has resulted in somewhat improved contract deliveries of Connellsville and Virginia coke in this district. Points to the west also report a slight easing in the situation, but none of the important users has a ton over what he needs to keep going, and in some instance curtailment has been necessary because of shortage. Nothing in the way of eastern coke is being offered here. Dealers are devoting their energies to getting shipments forward.

Labor Rather Indifferent

Birmingham, Ala., June 11.—To the indifference of labor in rendering a full week's work is attributed the curtailed and inferior production of coal. This is having effect on coke production. Appeals are being made to labor at the coal mining camps to give every day possible toward a better production and cleaner coal. Federal figures show a reduction in actual figures of coal production for the last half of the past month in comparison with the previous two weeks. The Birmingham district will ship much of the nut coke from by-product plants to New Orleans to replace the market for anthracite coal from Pennsylvania which will be cut off by order of the federal fuel administrator.

On June 1, the Alabama Co., Birmingham, Ala., blew in its Etowah No. 2 stack.

Expect Control of Scrap

Government Distribution of Old Material Believed Not Far Distant—Shortage Causes Collections to be Speeded Up

FOR COMPLETE SCRAP PRICES SEE PAGE 1526

Buffalo, June 11.—It is the opinion of well-informed persons interested in the scrap trade here that the government will, within a few months, take over the administration of the scrap production in order to properly distribute the large tonnages now coming from the ammunition plants, among consumers in need. It is being recognized that scrap is almost as great a component part of the steel production as pig iron, and present indications are that there will be a real shortage of heavy melting steel this winter. It is felt that a zone system should be established throughout the country to make a thorough survey of the stocks on hand and those being produced in each district. Consumers' stocks are undoubtedly low just now in most instances. The demand continues strong and there is no surplus of heavy melting steel available. Dealers are not able to secure any scrap from the railroad companies. Mixed country scrap which usually becomes a heavy source of supply at this time of year, is very scarce and shipments into this district now are about one-quarter of these received last year. Present government prices are subject to revision July 1, and the situation is being closely watched here. Reduction in the price of cast scrap and malleable is looked for and the placing of fixed prices on relaying rails will undoubtedly come up for consideration.

Turnover Is Good

Boston, June 10.—There has been a fairly good turnover of scrap in this territory during the past week; it might have been larger if the available supply was larger, while none too good shipping facilities also have interfered to some extent with business. New England foundries are still "hungry" for cast scrap and supplies are insufficient. Prices firm at full government maximums plus commissions.

Steel In Greater Demand

New York, June 10.—Increasingly heavy demand for virtually all grades of heavy melting material is the outstanding feature in the New York scrap market. As a result, off-grades are being more and more in demand. During the past week Pittsburgh consumers, with permits enabling them to pay the differential in freight between eastern and western Pennsylvania points, have been in the market for steel scrap in steadily increasing numbers. This demand, in addition to an improved inquiry from eastern consumers, has reduced the supplies of melting steel considerably. Other descriptions, due to the good demand of the past few weeks, also are scarce. Prices generally are firm at the government maximum.

Can't Locate Wrought

Philadelphia, June 11.—Very little activity prevails in the scrap market in this district. The mills and consumers generally have enough material for immediate consumption, although the scarcity of yard scrap promises trouble ahead. Wrought remains scarce. The American board of scrap iron dealers is making slow progress in locating 10,000 tons of wrought pipe.

Demand is Brisk

Pittsburgh, June 12.—Brisk demand exists for all of the leading grades of old material. Dealers report that supplies in this district, which consumes more than it produces, has been drawn on heavily and in consequence some buying from outside zones has taken place. One large consumer bought a round tonnage of heavy melting steel from a dealer in the east at $29, delivered, plus the commission of 3½ per cent together with the freight differential from Philadelphia. Permission to buy material in another district has to be obtained by consumers from W. Vernon Phillips, chairman of the subcommitttee on scrap. When the new freight rate advances become operative on June 25, the increases will be paid by dealers inasmuch as prices are fixed f.o.b. consuming points. Dealers also will have to pay the increaased freight rates for that portion of material they have bought which is not delivered previous to June 25. Some of them feel that in view this situation of higher prices should be granted for the third quarter.

Wonder as to Regulation

Cleveland, June 11.—Now that Washington has put all iron and steel products under its wing, scrap iron and steel dealers are wondering whether their industry is next. Most dealers here feel that so long as the trade keeps scrap moving to the mills in sufficient quantities there will be no change in the present status. The only government interference expected is help in uncovering supplies of iron and steel scrap that the trade itself cannot touch. Most producers of scrap feel that third-quarter prices will not be any lower and may possibly be higher, so they are holding to their material. Turnings have softened noticably. Melting steel continues scarce. Dealers are redoubling efforts to get as much scrap as possible moving before June 25, when the 25 per cent freight rate increase goes into effect. A Lackawanna railroad list closes June 18.

Round Steel Tonnage Wanted

Chicago, June 11.—Trading in iron and steel scrap in this district is only nominal, with demand slack and supply moderate. Consumers usually are taking small lots but an independent steelmaker is in the market for heavy steel and shoveling steel for immediate use and to build up a reserve for winter. As much as 20,000 tons may be involved. Prices remain approximately level with about half the items at the government maximum and the remainder somewhat below. Some grades continue practically unobtainable, including rerolling rails and wheels, while some other grades are in fairly heavy supply. Railroad listings at present are slightly heavier than is the rule, but the supply from this source is still far below normal. The Wabash offers 2000 tons, the Chicago, Milwaukee & St. Paul 1400 tons, included in which is 500 tons of steel rails, the Northern Pacific 950 tons and the Union Pacific 750 tons.

Inquiries More Numerous

Cincinnati, June 10.—A ripple was caused by inquiries that were put out quietly, for different kinds of scrap. No. 1 machine cast and heavy melting steel were both wanted. Although there were circulated reports that cast borings and steel turnings were bringing the maximum price allowed, this cannot be substantiated by any transactions. Steel turnings are somewhat stronger than iron borings, as they can be used by nearby rolling mills.

Drive For Country Scrap

St. Louis, June 8.—Prices for scrap iron and steel here this week have remained stationary, with the demand indifferent and sales extremely light. Dealers are at a loss to account for the apathy on the part of users, as the rate

of consumption continues large and stocks in many instances are nearing the vanishing point. The answer probably is that the leading melters are unusually well fortified with contract material, which is expected to materialize in augmented deliveries during June, July and August. There has been intermittent trading between dealers, and some outside shipments, notably to the Pittsburgh district. A vigorous campaign is being pressed by dealers here to stir up tonnages in the country. Connections in small towns are being circularized to assemble old material for shipment before cold weather. The lull in farm operations incident to completing corn planting has enabled farmers to haul their scrap to railroad terminals, and it is likely miscellaneous offerings will increase in the near future.

Shell Standards Revised

Physical Tests and Heat Treatment Requirements Made More Strict—Sheet Bar Shortage Remains Acute

Youngstown, O., June 12.—United States specifications for shell steel have been altered. Notices to this affect were received by makers here Tuesday. Stricter physical tests will be required from now on and mills already made preparations to conform to the new specifications. The government has not as yet placed any second-half shell-steel business in this territory, althuogh makers are of the opinion that vast tonnages will come out before long. Many mills in this district turning out shell steel will welcome second-half business for this material as first-half bookings are nearly completed. Two of the mills only have approximately a week's more rolling while another has about 20,000 tons yet to roll. The tonnage of shell steel rolled by the mills here has been enormous. But few tons remain in the mill yards waiting shipment. As fast as the steel was rolled it was forwarded to the various forge and heat-treating companies which now have an abundant supply to draw from. It is rumored the British requirements for shell steel have been satisfied and that the mills need not look for any further tonnages from them unless something unforeseen develops. Sheet bars are extremely scarce and mills are finding it hard to locate even small tonnages.

Scarcity Is More Acute

Pittsburgh, June 11.—Tonnages of semifinished steel are becoming scarcer and transactions are rare. Those made involve only small lots and follow vigorous efforts of consumers to find offerings. It is reported that small lots of billets and sheet bars have been sold during the past week, but so far as known there were no sales of slabs or wire rods. In all instances the material is going to consumers who are engaged in direct and indirect government work and is obtained through priority certificates.

Seek Higher Prices on Ore

Independents Meet Institute Committee—Increase in Costs From Higher Freight and Labor Rates

Higher prices on Lake Superior iron ore will be asked by producers when the iron and steel products committee of the American Iron and Steel institute and the war industries board meet within a few days to consider third quarter quotations.

This action results from a meeting held June 11 in Chicago of independent ore producers. They met to discuss costs in relation to increasing wages, freight charges and other factors and to bring these increases to the attention of the committee so that the entire question may be taken up thoroughly at the next price-fixing session.

A committee will be named to represent the independent ore producers, to act through the institute committee and represent this branch of the steel industry before the war industries board.

The recent rate increases of 33.6 cents per net ton on iron ore carried from mine to dock, together with the recent increase of 15 per cent in wages to mine workers, has proved a burden which independents feel must be shifted if mining is to return a profit.

A large representation of producers attended the meeting, armed with cost sheets and exhibits as to the effect of the new rates of freight and wages.

The committee has not yet been named but will be representative of all interests and will provide a point of contact between producers and the price-fixing authority.

Coincident with this gathering a meeting was held in Chicago between Judge E. H. Gary and a number of members of the iron and steel products committee and representatives of the ore producers. The members of the institute were on their way to Duluth to consider that city's claim to basing privileges. The conference was informal and was for the purpose of giving first-hand such information as the ore producers had so that the institute committee may be fully informed as to the conditions of ore production when the matter comes up for adjustment.

Better Output

Shown in Tin Plate—Ask Ruling on Off Lot Sales

Pittsburgh, June 12.—The tin plate industry continues to operate on a heavy schedule, although the production at the present probably is slightly under that which has been obtaining and which was in the neighborhood of 95 per cent. The hot weather together with the slight shortage of sheet bars appears to have affected production to a small extent. The industry, however, has been and is producing highly satisfactory results in connection with requirements for the war program. As in the case of sheetmakers producing tin plate, the war industries board has been asked for a ruling as to whether or not it will be necessary for consumers to get priority certificates in order to obtain off-size tonnages. Makers will not formally open their books for second half business. Producers are committed heavily on contracts for tonnages to enter into the manufacture of food containers program.

Confusion Caused

By Plan to License Surplus Tonnage of Wire Products

New York, June 10.—Wire producers, now that the government has taken over the iron and steel business, fearfully await the application of the priority system to their sales. So far no instructions as to changes in procedure have been received. In case a priority certificate is necessary with every order, endless confusion and detail are expected, since the large wire companies book hundreds of orders a day. It is pointed out that the volume of priority orders has not yet become large enough to take up the entire output of the mills.

Affected by Licensing System

Pittsburgh, June 11.—Makers of wire and wire products are affected appreciably by the licensing system adopted by the war industries board. These producers have had perhaps more capacity that could be diverted to the supplying of their regular customers than most lines in the iron and steel industry.

Buy Bars For Cars Direct

Builders Instructed to Place Tonnage Where They Can—One Seeks 25,000 Tons—Open Bar Iron Capacity Neglected

Chicago, June 11.—In ordering car material, most attention has been given to plates and shapes, while the requirements of steel bars have not been looked after in equal degree. In at least one case the builder has been instructed to obtain his bars, about 25,000 tons, wherever he can place the tonnage. Under present conditions, it had been supposed that bar iron and hard steel bars might be substituted to relieve the burden on soft steel, but up to this time western mills have not seen any signs of this. One reason for this is that iron bars are being sold at 3.50c, while the soft steel bar maximum is 2.90c, a difference of $12 per ton against iron bars. In the same way hard steel bars are $2 higher than soft steel bars and are exceedingly scarce on account of lack of rerolling rails. It has been suggested that the next announcement of maximum prices may bring a reduced price on rolling mill scrap and a corresponding cut in the maximum on bar iron, which would render this available as a substitute. Bar iron mills have comparatively little business on their books, having sold almost nothing for third quarter. Rerolling bars are in strong demand but mills are unable to meet it on account of lack of rerolling rails.

Produce Only War Demands

Pittsburgh, June 11.—Makers of iron and steel bars are taking business which is for direct and indirect war purposes only. Producers of iron bars are operating heavily to take care of the large demand and will be required to furnish a good-sized tonnage in connection with the carbuilding program. Capacity of steel bar mills is considerably in excess of requirements, but there are no offerings for purely commercial consumers for the reason that mills are getting only that portion of raw steel that is necessary to produce demands being made upon them for direct and indirect military necessities.

Are Operating at Capacity

Pittsburgh, June 11.—Capacity operations are being maintained by makers of nuts, bolts and rivets who continue to receive large orders for the government either direct or indirect. Producers are able to give good deliveries despite the heavy demands. No business is being taken from any consumers unless they are able to show priority certificates. Makers say they have been successful in their efforts to get enough steel bars to take care of direct and indirect war needs. Some producers of rivets claim they cannot manufacture profitably since the price was reduced $5 a ton, and it is understood they are preparing to ask for the restoration of the previous levels.

More Band Contracts Made

Pittsburgh, June 11.—The removing of bands from the bar card and the classifying of them with hoops by which the base price advanced from 2.10c to 3.50c, has resulted in an increase in booking contracts. Makers have taken these commitments from regular customers and with the understanding that they would make no promise as to deliveries. Sales of hoop steel are being made in fair volume for either direct or indirect war needs. Commercial consumers have found it difficult to obtain hoops and it has become impossible to do so under the licensing system of the war industries board in the absence of proper priority certificates.

Orders More Liberal

Cleveland, June 12.—Orders for nuts, bolts and rivets, outside of government business, are being placed much more freely than for some time. Makers consequently are further behind on deliveries than ever and with the increased difficulty in obtaining raw materials, continue to fill orders in rotation to the best of their ability. Some third quarter contracts for rivets are being placed.

Seek Bolts for Ships

Chicago, June 11.—An Inquiry for about 5,500,000 bolts, the larger portion being of one size, has been current in the west the past few days for the Hog Island shipyard. So far as known, no western maker is able to bid on this business. The quartermaster department still delays placing the large government inquiry which was put out several weeks ago. The allocating committee of the bolt industry is understood to have made a schedule for dividing this business, which is now in the government's hands, but apparently has not been acted on.

Japanese Plates Released

Government Asks Immediate Shipment of Approximately 200,000 Tons —Distribution of Car Steel—Tanker Tonnage Allotted

Chicago, June 11.—Two events of great importance to platemakers have just taken place, the releasing of ship plates for export to Japan and the placing of tonnage for carbuilding material. The former is the result of the agreement between the United States shipping board and Japanese builders to furnish this country with complete ships in return for plates. The order from Washington for releasing and forwarding these plates asks immediate delivery, and every consideration of haste in getting them through to Pacific coast ports for shipment to Japan. While exact figures are not available, it is understood about 200,000 tons are involved. An independent platemaker has been given orders, with priority certificates to follow immediately, for approximately 10,000 tons, which represents about half the tonnage he has on its books for this purpose. The division of material for freight cars, apparently places something over 300,000 tons in this territory. The leading interest has been given 261,000 tons with probably 100,000 tons additional yet to be heard from. It has been ordered to furnish 87,000 tons to the American Car & Foundry Co., 36,000 tons to the Pullman Co., 96,000 tons to the Standard Steel Car Co. and the Pressed Steel Car Co., 4000 tons to the Pacific Car & Foundry Co., and 38,000 tons to Haskell & Barker. The latter company also desires 25,000 tons of steel bars, which it has been instructed to buy where it can obtain them. Orders have not been received for steel to go into 4000 cars to be built by the Mt. Vernon Car Co., 1000 cars each by the St. Louis Car Co., and the Liberty Car Co., and 3000 cars to be built by the Bettendorf Co. The leading independent has been awarded 25,000 tons for the Pullman Co., 15,000 tons for the American Car & Foundry Co. and 10,000 tons for Haskell & Barker.

Cargenie Gets 24,000 Tons

New York, June 10.—Among orders for vessels recently placed by the navy department, is one for eight tankers

which will be built by the Newport News Shipbuilding & Dry Dock Co. For these vessels, 24,000 tons of plates have been placed with the Carnegie Steel Co.

Needs to Exceed Estimates

Philadelphia, June 11.—Information is reaching eastern platemakers that plans of the Emergency Fleet corporation call for future tonnage of this material far beyond expectations. This program is so vast that some mills doubt the possibility of its realization. The statement of Chairman Hurley, of the shipping board, at South Bend, Ind., that next year's shipping program will total over 13,000,000 tons, is accepted as including probably 10,000,000 tons of steel ships. Such a scale of construction would require approximately 3,500,000 tons of plates. In view of the heavy ship, allied, railroad and other domestic requirements, the output of plates it is feared by some makers may be insufficient for the preference list alone.

Consider New Shipyard

Cleveland, June 11.—Plans are now under consideration for the establishment of a new steel shipyard in this city. The success for the venture depends upon whether a contract for 10 ships is secured.

Award Fabricating Plants

McClintic-Marshall Construction Co. Proceeds to Build Two 10,000 Ton Monthly Units for Government—Ship Tonnage Let

Pittsburgh, June 11.—Work will begin at once on the erection of the two fabricating plants which are to be built by the McClintic-Marshall Construction Co., this city, for the Emergency Fleet corporation. Each plant will have a monthly capacity of 10,000 tons, and it is proposed to have both completed and in operation in nine months. One will be built on the site of the Riter-Conley Mfg. Co. at Leetsdale, Pa., in the Pittsburgh district, a subsidiary of the McClintic-Marshall Co., and the other at the site of its plant at Pottstown, Pa., near Philadelphia. The general construction will be done by the Hughes-Foulkrod Co., and each plant will require about 4000 tons of structural steel. Both plants will be engaged altogether in fabricating ship steel. Arrangements have been made for the purchase of shears, rolls, punches, cranes and other necessary equipment which will be furnished through priority orders of the government, as will also the steel for the plants. The equipment will cost virtually as much as the plants. The capacity will be above the average.

Ship Tonnage Distributed

New York, June 11.—Orders for some 12,000 tons of shapes to be used in the construction of eight tankers which the navy has placed with the Newport News Shipbuilding & Drydock Co. have been allocated the past week to a number of eastern mills. This was the most important business in plain shapes. Orders for shapes in this immediate district are of small moment and mills in all cases insist on priority certificates. The largest inquiry current involves 4000 to 5000 tons for the expansion of the Midvale Steel & Ordnance Co. works at Nicetown, Pa. The extension is understood to be to the machine shops.

Placing Shipyard Extensions

Philadelphia, June 11.—Large orders for structural steel for shipyard extensions are being placed. The McClintic-Marshall Co. has received 12,000 to 15,000 tons for six ways and buildings for the New York Shipbuilding Co., at Camden. It is expected that the extension of the Newport News Shipbuilding & Dry Dock Co. will require about 15,000 tons and that of the Sun Shipbuilding Co., about 8000 tons. Two new government projects now materializing in this district will call for 10,000 to 12,000 tons.

CONTRACTS AWARDED

Extension to plant of the National Screw & Tack Co., Cleveland, 480 tons to the Riverside Bridge Co., Cleveland.

Plant extension for the Aluminum Castings Co., Cleveland, 250 tons, to the Niles Forge & Mfg. Co.

Crane shop addition for Pawling & Harnischfeger Co., Milwaukee, 550 tons, to Northwestern Bridge & Iron Co.

Manufacturing building for Lavine Gear Co., Milwaukee, 125 tons, to Milwaukee Structural Steel Co.

Soaking pit building for Mark Mfg. Co., Indiana Harbor, Ind., 500 tons, to Northwestern Bridge & Iron Co.

Shop addition for Pressed Steel Tank Co., West Allis, Milwaukee, 125 tons, to Northwestern Bridge & Iron Co.

Three bridges for the Pennsylvania railroad 720 tons to McClintic-Marshall Co.

CONTRACTS PENDING

Virginia railroad 1800 tons of bridge work, bids being taken.

Viaducts at Providence, R. I., for the New York, New Haven & Hartford, 1300 tons, bids being taken.

Bridges for the Pennsylvania railroad 350 tons, bids being taken.

Sheet Makers Seek Ruling

Ask War Industries Board Whether Sales of Off Lots Must Be Approved—Production Still is Lagging

Pittsburgh, June 12.—Request has been made upon the war industries board to give a ruling as to what effect, if any, the adoption of the licensing system will have upon the sale of cut down, off-weight and off-size sheet tonnages. It is the practice of the trade to dispose of these lots, which represent an extremely and almost insignificant portion of sheet production, to jobbers and commercial consumers because the sizes could not be used for either direct or indirect war purposes. Lots of this kind are produced when the mills are heated up for the production of standard sizes. The mills want to know if it will be necessary for consumers to obtain priority certificates in order to get these odd tonnages. It is not believed consumers will be required to get the certificates.

Government Orders Large

New York, June 10.—The government thus far this year has ordered 600,000 tons of light sheets, including black, blue annealed and galvanized. Earlier in the year it estimated its requirements for the year at 75,000 tons, which was far below the actual needs. Thus far in 1918 about 400,000 tons of sheets have been rolled for the government.

Capacity Shut Down

Youngstown, O., June 12.—Throughout the valley many sheet mills are operating unsteadily for want of sheet bars. This material has now become so scarce that one sheetmaker is expected to shut down all mills the latter part of this week. Even self-contained sheetmakers are short of bars due to the shortage of bessemer steel and have several mills idle as a result. The action of the government in obtaining full control of the steel distribution has not affected makers here to any great extent. Nearly all mills have been giving the government, either directly or indirectly, their entire output for several weeks, and the announcement came as no surprise.

Government Control is Complete

All Distribution Now Being Regulated From Washington

Formal Agreement Entered Into Between War Industries Board and Producers Marks New Regime of War Administration—Specified Preferential Purposes Remain Basis of Plan—Steel Director to License Surplus Sales

GOVERNMENT control of iron and steel is now complete. On June 6 a historic and memorable document whose far-reaching effects will be felt in every quarter where iron and steel has been consumed was issued at Washington. This was in the form of an announcement by the war industries board that it had adopted an agreement entered into between a committee of its members and of the American Iron and Steel institute, whereby the entire output of the industry virtually would be commandeered for war and for those purposes which are related to war. This agreement provides that the war industries board through the priorities board and the director of steel supply shall exercise complete power over the production and distribution of every ton of iron and steel. This control is to be effected through priority certificates, nonpriority orders which fall within a stipulated schedule of purposes to be given preferential treatment; and through licenses to be issued by the steel director.

The adoption of the licensing system bears out the exclusive publication in THE IRON TRADE REVIEW of June 6, that such a plan had been framed and probably would be adopted. The licensing plan which is somewhat similar to that followed by Great Britain for several years, is the striking feature of the agreement and the vital point in the plan for nonwar consumers of iron and steel. Whatever surplus of iron and steel may remain after war and essential requirements have been filled will be distributed only with the direction and approval of the steel director. This licensing plan fills the final gap through which any material for ordinary commercial purposes previously would have passed at the volition of buyers and sellers. Its effect is to put the iron and steel industry completely under government domination.

Shift Final Responsibility From Makers

WASHINGTON, June 11.—Control of the entire output of the iron and steel industry passed to the government June 6 immediately upon ratification by the war industries board of an agreement between its representatives and the American Iron and Steel institute. Responsibility of distinguishing between essential and less essential consumers in order that every available pound of iron and steel contributed to the war thereby was shifted from the shoulders of each individual producer to those of J. Leonard Replogle, the board's director of steel supply. This action is regarded as constituting one of the most momentous and farreaching events in the history of iron producing and consuming industries of the country.

Government control means the licensing for consumption of every pound of pig iron or steel that is not already destined for direct or indirect war use under authority of a priority certificate or through strict observance of the general purposes list which is to be augmented, as far as practicable, by an itemized compilation of essential steel consumers. The licensing feature of the agreement was added by the government to the institute's request for continuance of the priority system and an itemized preferential list.

The extent to which the licensing system may be used in connection with the distribution of nonwar commercial steel may be had from this information: At the time when the war industries board ratified the agreement, direct and indirect war orders for steel constituted 85 to 90 per cent of the present production. Since that time fresh government requirements have been made known to the steel director and these materially reduce the 10 to 15 per cent going into commercial tonnage. And, it is stated officially, the end is not yet in sight.

The war industries board can give no assurance as to what extent steel consumers will be permitted to obtain this raw material. Each consumer will be considered according to his esential relation to the war. It is stated that no fixed percentage of curtailment in any industry can be determined because of such questions as the amount of steel required to complete an inventory, the value of the industry or plant in relation to war service, the volume of steel that may be diverted to any consumer without jeopardizing the war supply and still be fair to all nonwar consumers, etc.

In addition to giving war requirements 100 per cent fulfillment, the steel division of the war industries board wants to build up a reserve of materials, principally coke, pig iron and ore, to meet future unexpected war needs and also to be prepared to keep furnaces and mills operating on more essential war orders next winter. The railroad and fuel administrations are continually pointing out the almost certain tie-ups the winter is expected to bring. It is urged that especially trades like iron and steel do everything in their power to make the impending shortages as less severe as possible.

With this object in mind, the war

Historic Edict on Iron and Steel

BE IT RESOLVED by the war industries board that the following agreement, reached as a result of several conferences between a committee of this board and the American Iron & Steel Institute, be and the same is hereby ratified, confirmed and approved, to become effective at once.

The Formal Agreement

WHEREAS, a careful study of the sources of supply in connection with the present and rapidly increasing direct and indirect war requirements for iron and steel products has convinced the war industries board of the necessity for (1) a strict conservation of the available supply of iron and steel products, on the one hand, and (2) the expansion of existing sources and development of new sources of supply of iron and steel products, on the other hand; and

WHEREAS, the producers of iron and of iron and steel products in the main concur in this conclusion reached by the said board and have expressed their willingness to wholeheartedly co-operate with the said board in its efforts to provide for promptly meeting the direct and indirect war requirements of the United States and its allies for iron and steel products;

NOW THEREFORE, it is understood and agreed by the committee on steel and steel products of the American Iron and Steel institute and the war industries board that no pig iron or steel manufactured products shall be shipped or delivered, except as follows:

(1) By priority certificates issued by the priorities division of the war industries board; or

(2) After priority certificates shall have been issued for or filled, then producers of pig iron and of steel manufactured products may utilize such raw materials and manufacturing capacity, if any, as they may have available, to fill orders of their customers not covered by priority certificates, provided such orders are embraced within the schedule of purposes entitled to preference treatment as determined by the priorities board as follows:

(*Including all necessary raw materials, partially manufactured parts and supplies for completion of products.*)

Ships—Destroyers and submarine chasers.

Aircraft.

Munitions, Military and Naval Supplies and Operations—Building construction for government needs. Equipment for same.

Fuel—Domestic consumption, manufacturing necessities named herein.

Food and Collateral Industries—Foodstuffs for human consumption and plants handling same; feeding stuffs for domestic fowls and animals and plants handling same. All tools, utensils, implements, machinery and equipment required for production, harvesting and distribution, milling, preparing, canning and refining foods and feeds such as seeds of foods and feeds, binder twine, etc. Products of collateral industries, such as fertilizer, fertilizer ingredients, insecticides and fungicides. Containers for foods and feeds, collateral products. Materials and equipment for preservation of foods and feeds, such as ammonia and other refrigeration supplies including ice.

Clothing—For civilian population.

Railroad—Or other necessary transportation equipment, including water transportation.

Public Utilities—Serving war industries, army, navy and civilian population.

PROVIDED, HOWEVER, whenever the priorities board shall have promulgated and certified for observance to the producers of pig iron, and steel manufactured products, a revised preference list, no surplus material or capacity after filling or providing for all orders covered by priority certificates shall be used to fill non-priority orders save such as are placed by industries or plants embraced within such preference list; and

PROVIDED FURTHER, that each producer of pig iron and of steel manufactured products shall at the end of each week, ending with midnight Saturday thereof, prepare and forward to the director of steel supply of the war industries board a detailed statement of all shipments made during such week not covered by priority certificates.

BE IT FURTHER RESOLVED, that should any producer of pig iron or of steel manufactured products have any surplus war material or manufacturing capacity after filling (a) all orders covered by priority certificates and (b) all orders embraced within the schedule of purposes entitled to preference treatment or placed by industries or plants embraced within the revised preference list, after it shall have been promulgated and certified by the priorities board, then in such event such surplus materials or capacity may be disposed of by such producer or manufacturer to other customers subject to approval in writing of director of steel supply first had and obtained.

BE IT FURTHER RESOLVED, that the director of steel supply and a committee appointed by the American Iron and Steel institute shall jointly make a careful study of the present and prospective iron and steel requirements of each and every department and agency of the government of the United States and of its allies, and the capacity of the iron producing and steel manufacturing plants of the United States to meet such requirements and present to this board as early as practicable (1) a report of their findings together with (2) recommendations of measures, if any, which should be taken to stimulate and increase the production of iron and of iron and steel products in order to meet the direct and indirect war requirements and the demands of industries of exceptional or national importance.

industries board, which has taken over the conservation division of the the council of national defense, has announced a new plan looking to the conservation of all materials in which there is likely to be a shortage because of the government's being a factor in the market. This particularly applies to manufacturers of products whose raw materials include iron or steel. They are to be called to Washington to make known their requirements, to discuss the conservation policy and to determine what, if any, curtailments they could effect. The first of these conservation conferences was held last week when it was decided manufacturers of refrigerators would try to find some way of enameling on zinc, of which there seems plenty, in order that the pig iron now going into galvanized iron sheets used in ice boxes may be diverted to more essential war work. The fuel administration has been following this plan for months. Methods of factory fuel conservation are receiving attention.

Chairman Baruch, to whom is attributed the statement of ten days ago that there was then a 20 per cent margin between war requirements and present production, last week declared that not a shipyard, gun shop, projectile plant or munitions works requiring steel is short a pound of this material, as far as immediate needs are concerned. He said forging and projectile steel production has been ahead of consumption and that the only requests for available surplus steel has come from the shipbuilding industry. These surpluses are desired to offset transportation troubles of next fall and winter.

Replogle Commands All Iron and Steel

WASHINGTON, June 11.—The action of the war industries board in placing the entire iron and steel industry under the triple system of priorities, preference and license, put J. Leonard Replogle in a position which is as important to the welfare of the entire country as is the industry itself to the industrial fabric of the nation. He no longer directs the distribution of iron and steel only for government and allies account but controls the allocation of these materials for every commercial consumer. The authority he now holds is the same as that which would be exercised by any one else who might be steel director. He has the power of the President as the chief executive might wield it under the Overman bill.

Mr. Replogle's organization probably will become one of if not the largest under the jurisdiction of the war industries board. It has not been definitely determined to what extent it will be expanded, but the suite of offices now occupied in the war board building likely will be extended to an entire wing, both first and second floors. It now occupies six or seven rooms in wing five and likely will be transferred to wing six with Mr. Replogle's private office in the room occupied by W. S. Gifford, director of the council of national defense. This

Name of Company _____ *Report for the Week Ending* _____

WAR INDUSTRIES BOARD—OFFICE OF DIRECTOR OF STEEL SUPPLY
WASHINGTON D.C.

SHEARED AND UNIVERSAL PLATES

State all Tonnages in Net Tons of 2,000 Pounds

No. 2

	ORDERS FOR U. S. GOVERNMENT (DIRECT AND INDIRECT)*					DOMESTIC ORDERS NOT GOVT.	ORDERS FOR FOREIGN GOVERNMENTS									FOREIGN ORDERS NOT GOVT.	GRAND TOTAL
	ARMY	NAVY	EMERGENCY FLEET	OTHER U.S. GOVT.	TOTAL U.S. GOVT.		CANADA	ENGLAND	FRANCE	ITALY	RUSSIA	JAPAN	SOUTH AMERICA	OTHER FOREIGN GOVTS.	TOTAL FOREIGN GOVTS.		
Brought Forward From Last Week																	
Received During Week																	
Total Orders																	
During Week: Class A Certificates																	
Class B Certificates																	
On Preference List																	
Shipped Under Permit																	
Total Shipments																	
Cancelled During Week																	
Total Outstanding Orders End of Week																	

ALL OUTSTANDING ORDERS AT END OF WEEK CLASSIFIED ON PRIORITY BASIS.

Class A Certificates																	
Class B Certificates																	
On Preference List								1									
Under Permit																	
Total, Must Equal Total Above																	

*Orders for material to be used by the Government should be listed here whether the orders were placed directly by the Government or indirectly through a subcontractor on a government contract.

IF NOT OPERATING TO CAPACITY, ADVISE LIMITING FACTOR _____

NOTE.—Mail copies not later than Monday to the following addresses:

J. LEONARD REPLOGLE,
Director of Steel Supply,
War Industries Board,
Washington, D. C.

JAMES B. DUNNER,
Vice Chairman, Subcommittee on Steel Distribution,
American Iron & Steel Institute,
Wilkins Building,
Washington, D. C.

Signed _____

By _____

NEW FORM ON WHICH PRODUCERS WILL REPORT CONDITION OF ORDER BOOKS AND OPERATIONS

is under consideration at this time.

Expansion of the staff under the steel director will undoubtedly mean a drain upon present mill and furnace executive and clerical forces. Experts must come from some source and that is the logical place. Additional divisions under Mr. Replogle, each in charge of practical steel men, will be established. Already the pig iron section is under Jay C. McLauchlan of Pickands, Mather & Co., the steel products section is in charge of Frank Purnell of the Youngstown Sheet & Tube Co., and the rail and alloy steel division under Paul Mackall of the Bethlehem Steel Co. Each now has an assistant, with the usual clerical help, and more will be provided.

In addition to the added burden of carefully supervising the issuance of iron and steel priority certificates, as well as being called upon to require strict observance of the preferential list of industries, Mr. Replogle will have the task of licensing the production of all remaining steel tonnages. Any one of these three in its own relation to the triple combination would require a fair sized clerical staff and the ensuing difficulties of obtaining a working organization.

The new requirement of reports of weekly production and shipments has necessitated some changes in the form of reports Mr. Replogle is to receive from each steel producer. Already the pig iron reports have been changed from their earlier form. The steel products reports are now on the press. The accompanying illustration, typical as to all reports except that on pig iron, shows the sheared and universal plates weekly statement as it will be revised to meet the preferential and license provisions of government control.

In addition to extending the shipments division of the report to meet the new requirements, it has also been decided to consolidate the steel priority clasification tables from A-1, A-2, A-3, A-4 and other Class A simply to Class A, to retain Class B and to drop Class C, making the proper substitutions of preference and license. The new report also provides space to inform the steel director why if a mill is not operating to capacity. This last provision is of significant importance.

Mr. Replogle also is to work with the steel distribution subcommittee of the institute in continuing the survey out of which the triple system has developed. This survey, while not likely to get a definite of war requirements, will obtain information which will be of great value in the industry's operation and in Mr. Replogle's direction of it. The survey is to show where steel plants may be converted to war production and to recommend additions where capacities, present or converted, cannot meet requirements. In this connection, it is know that new plate mills to come in before Jan. 1 will add 1,300,000 tons to present capacity.

The general resolution adopted by the war industries board refers to a list of preferred industries compiled under the classification outlined in the general purposs list. This preferred industries tabulation is now being compiled and may be ready for publication within the week. In the meantime, mill operators may obtain further guidance in finding preferred industries by consulting the priority list No. 1 of the fuel administration

Will There Be Any Steel For Open Sale?

What the General Industry Believes

PITTSBURGH, June 11.—The best opinion of the trade here as to when any iron or steel will be available for the open market under the federal licensing system is that it is impossible at this time to solve such a problem. The general belief, however, based upon the known wants of the government and estimated future requirements, is that it will be eight or nine months before any sizable tonnage is given to the open market, and some observers think it will be a year and a half or even more. Government needs in most lines in the way of actual tonnages are definite as applying to a short period only, the principal exceptions being ship and shell steel, of which the government has taken the entire output, practically the entire production in other lines which are operating fully is also going to war needs, but probably will not do so for so long a time as will shell and ship steel. The turn of the war on the battlefield of France is held to be the principal

The Iron Trade Review's Washington Service—

How It Scored on the Big News of the Week

The Forecast

From Issue of June 6

WASHINGTON, June 4.—A license system to regulate the use of pig iron and steel not going into direct or indirect war consumption probably will be adopted by the war industries board as the solution of the problem arising in the board's contention of an acute shortage of both materials and of the seel manufacturers' claim there will be sufficient steel, if properly allocated, for all essential consumers. It is understood the joint committee representing the board and the industry have agreed upon this plan which will be submitted to the board for its consideration and ultimate adoption.

The Facts

From Formal Agreement

"BE IT further resolved that should any producer of pig iron or of steel manufactured products have any surplus war material or manufacturing capacity after filling (a) all orders covered by priority certificates and (b) all orders embraced within the schedule of purposes entitled to preference treatment or placed by industries or plants embraced within the revised preference list, after it shall have been promulgated and certified by the priorities board, then in such event such surplus materials or capacity may be disposed of by such producer or manufacturer to other customers subject to the approval in writing of the director of steel supply first had and obtained."

In its May 30 issue THE IRON TRADE REVIEW exclusively published the list of priority purposes which the war industries board sets forth as the fundamental feature of the scheme of war distribution.

factor in considering the government's heavy steel requirements. Not knowing how long it will be before Germany is defeated, the trade takes the position it cannot say when it can offer tonnages of any size to commercial consumers. It is believed they will have their supplies cut more than ever, at least for the present, as a result of the licensing system

Can't Fill All Needs

Philadelphia, June 12.—Present indications in the east are that there is not enough iron and steel to cover all the uses set forth under the preferential list adopted by the war industries board. Efforts are to be made to provide for all, but some users under the list may experience considerable delay in getting material, at least in the near future. It is expected that for the present no users not covered by the list can obtain material. Steelmakers say the preferential list is so broad as to include all essential requirements; furthermore, it covers nearly all requirements for which there now is a demand, as other users such as new construction not included in the list have already practically eliminated themselves. One steel company reports that only inquiries it has received in recent weeks which did not come under the preferential list are from abroad.

Eastern iron and steel men interpret the preferential list as including all requirements as entitled to priority. Producers previously have been familiar with this list as it was originally announced by the war industries board May 16 and was published by THE IRON TRADE REVIEW in its May 30 issue. Any order covered by the list, they believe, may be shipped without the priority certificate being secured; in fact, the priority certificate simply hastens the shipment.

Nothing For Months

St. Louis, June 11.—The concensus of opinion among the best informed in the iron and steel trade here is that the government's new licensing system will fail to supply the open market with materials this year or for a period well into 1919. Every producer in the district is sold to capacity for the balance of 1918 and all are deluged with priority orders which they cannot possibly fill.

Don't Expect Much

Buffalo, June 11.—Buffalo iron and steel men do not look for any iron and steel material to be available for the open market soon and most of them do not believe it will be available for some time. The establishment of further government control of the industry is interpreted to mean that the nation's needs constantly will be greater, and that the measures are being taken to insure sufficient government supply, rather than for the protection of the open market. The opinion prevails that the government will take everything during the next eight months, as its steel needs for that period total 22,000,000 tons, while production is about 2,750,000 tons a month.

More Locomotives

Ordered by the Government—100,000 More Cars Probable.

Washington, June 11.—The railroad administration has awarded contracts for 390 more locomotives and is said to be considering the placing of orders for 100,000 more freight cars. The contracts for the locomotives bring the total number of those ordered to 1415. If the freight cars are ordered the total number will be 200,000.

Contracts for locomotives were awarded as follows: To American Locomotive Co., 130 light Mikado, 100 switchers of six-wheel type, 15 heavy Santa Fe, making a total of 800 locomotives ordered from this company; to Baldwin Locomotive Works 57 heavy Mikado, 13 light Pacific, 30 consolidated anthracite burners, making a total of 570 locomotives ordered from this company. The Lima Locomotive Works was awarded its first government contract for 45 light Mikado.

Whether more freight cars will be ordered depends on the possibility of obtaining steel. Allocation of steel for present car awards may be completed by June 29. The new car order undoubtedly is contemplated for 1919 delivery, which may make a difference in placing contracts.

Will Build New Stack

Directors of the Pittsburgh Crucible Steel Co., Pittsburgh, have authorized the construction of an additional new blast furnace. The furnace will be located at Midland, Pa., adjacent to the 85 x 21-foot stack which was built in 1916 and rebuilt in 1914.

The Non-Ferrous Metals

Copper Lead Spelter Tin

	*Copper	†Spot Straits, tin	‡Lead, New York basis	Spelter St. Louis basis	§Aluminum	Spot antimony
June 5	23.50	.....	7.25	7.25	33.00	12.25
June 6	23.50	.....	7.30	7.25	33.00	12.25
June 7	23.50	.....	7.35	7.35	33.00	12.50
June 10	23.50	.....	7.35	7.40	33.00	13.00
June 11	23.50	.....	7.35	7.42½	33.00	13.12½

*Government fixed maximum price for prime lake, electrolytic and casting copper, in ingots, pigs, slabs, etc., less than carloads, 24.67½c.
†No spot Straits tin offering.
‡Outside market, prompt shipment.
§Government fixed price for 98 to 99 per cent ingot aluminum in 50-ton lots; lots 15 to 50 tons, 33.10c; one to 15 tons, 33.20c.

New York, June 11.—The war industries board has fixed the price of copper at 23.50c to Aug. 15; the price of aluminum ingot at 33c to Sept. 1; the price of grade A spelter (navy specifications) at 12c to Sept. 1; sheet zinc at 15c to Sept. 1, and zinc plates at 14c to Sept. 1. Therefore, uncertainty as to this proportion of the major nonferrous metals has passed for the next several weeks. An open market remains for tin, prime western spelter and lead.

The government continues to estimate its lead requirements in advance, allocating them at the average price for the month as determined by one of the mining journals. As regards prime western spelter, or grade A spelter, army specifications, the government asks for tenders and accepts the lowest price with the best delivery.

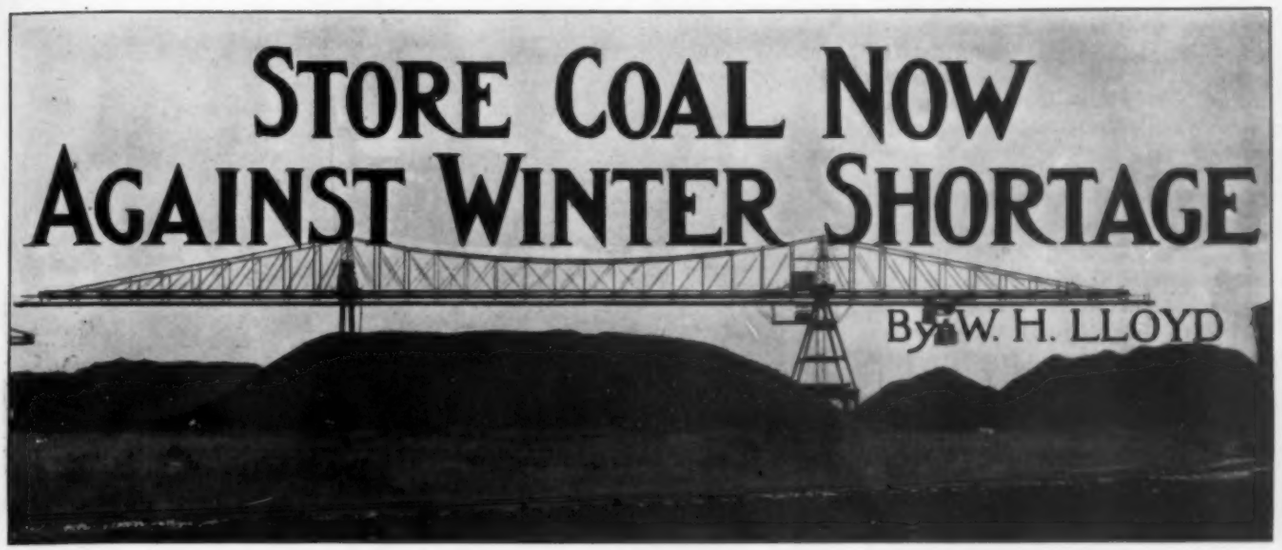
The tin market continues the most enigmatical of all. American consumers are now purchasing their supplies largely in Singapore, excepting in some cases they are obtaining metal from the New York agents of London houses who in turn buy in Singapore. Only two American companies are figuring in the import of tin, one of these being the United States Steel Corp. and the other the National Lead Co.

The Singapore tin market has been fluctuating wildly of late. Last Monday the price was £336, c. i. f. London, compared with £359 on Friday. The trade here has not yet learned the reasons for the sudden reduction, but in the lack of information is not engaged actively in trading. Straits tin for August shipment has been quoted at 82c; for September at 86c and for July-August at 82.50c, all c. i. f. New York. Banca tin afloat on a declared steamer is quoted at 92c; Chinese No. 1, 99 per cent tin, for spot delivery in New York, 93c.

The war industries board recently inquired for 250 tons of antimony for June-July delivery, which is understood to have closed at a trifle below 12c, duty paid.

STORE COAL NOW AGAINST WINTER SHORTAGE

By W. H. LLOYD



Brownhoist Coal-Handling Bridge Crane at Plant of Astoria Light, Heat & Power Co., Astoria, N. Y.

WHEN the German, American and English allied forces entered Peking at the time of the Boxer rebellion in China, they were confronted by what seemed to be a great mountain. Upon investigation they found beneath the sod, brush, etc., an enormous pile of coal, started by the Ming dynasty which preceded that of the Manchus. This great reserve was intended to provide the city against almost any siege and represented many thousands of tons. Yet longside some of the piles of stored coal now found in Nova Scotia and other parts of Canada, in the vicinity of Duluth and in other Great Lakes districts, which often reach a tonnage of 500,000, it would be comparatively small.

With memories of the rigors of last winter, still fresh in mind, when shutdowns other than the mandatory one of the fuel administration, were caused by a lack of coal, heads of industry are looking to the future and are taking steps to prevent repetitions during the coming season. Now they are asking themselves, if coal was successfully stored in China and is successfully stored in Great Lakes ports why is it not practicable for them to accumulate it against a possible shortage, or an inability because of railroad inadequacies to supply the needs when it occurs. It is true that in the past season, the chief disturbing factor, was the congested railway facilities caused by the overload of war.

Fuel Shortage Already Anticipated

With America a contently greater factor in the war, and with the struggle at arms more drawn out than originally anticipated, no optimistic view of greatly-bettered railroad facilities for next winter generally is held. In fact from all reports circulated by the fuel and railroad administrations, even worse conditions are in store. Already warnings of a fuel shortage of upwards of 75,000,000 tons are being posted and it is almost certain that even with the close co-operation that exists between the fuel and railroad administrations, unless precautionary steps are taken now to insure a supply, industry is doomed to be crippled in greater measure than was true during the past season. More than merely wisdom then, it has become the stern duty of manufacturers who aim to stand back of the boys in the trenches by keeping a steady stream of supplies, munitions, etc., going over, to take steps to have ample fuel supplies on hand to meet any crisis.

A Place for Patriotism

STORE coal, yes, but conserve while storing, was the message spoken in Chicago by E. W. Pratt, president of the International Railway Fuel association at its tenth annual convention recently. "If you don't put the red, white and blue into coal," he said, "the country will have an even greater coal shortage next winter than it did last." He cited figures to show that lack of rolling equipment is causing a production of only 60 per cent of capacity, despite a plentiful labor supply and said that repairs and additional trackage have speeded the mines up to make capacity production possible. He called attention to the fact that favorable weather and efforts of the railroad administration have cleared the tracks of the extended congestion which existed last winter. He appealed to the railways which use more than one-fourth of the country's coal output, to practice intensive conservation and to supply all the needed cars as expeditiously as possible. "There should be no Sundays or holidays," Mr. Pratt told the railway fuel men, in either mine, railroad or coal yard any more than there is in the trenches where the Hun is facing our boys and the war department's arrangement for deferred classification for skilled railroad men places on them a peculiar obligation for extra effort."

Storage Attended By Few Risks

It is true that the storage of coal is attended by not a few risks and rather exacting requirements. One factor is space, since it requires about one acre to successfully store 6000 tons of coal. Coal needs of industrial center are enormous. Chicago alone consumes on an average, 2,500,000 tons a month, it is estimated. In 1912, approximately 17,500,000 tons were used in that city, and with the estimated rate of increase of 10 per cent, in 1918, it will consume, practically 30,000,000 tons. In Great Britain, it is estimated that between 180,000,000 and 200,000,000 tons is the annual consumption. During the extremely cold weather of the 1917-18 winter, one middle-western manufacturing plant used 60 tons a day when running full, and when it had to shut down during the life of the Garfield order, 35 tons a day were used to keep the manufacturing material safe on hand from damage by cold. Of the 640,000,000 tons of coal produced in the United States last year, which was approximately one-third of the total world's supply, 90,000,000 tons were anthracite and the remainder bituminous. Two-thirds of the coal used in the United States is consumed in the production of power for transportation systems and indus-

tries; one-sixth is ued for coke and its by-products. Therefore industrial requirements outweigh domestic needs five to one and this demonstrates the importance of industry looking to its fuel supply.

Submerged Storage Proves Best

Much has been written about the chemical and physical deterioration of coal in storage and while it is not the purpose of this article to enter upon an exhaustive discussion of these factors, it might not be out of place to refer to the 2-year storage tests made by the United States bureau of mines in 1909. Carried on at the suggestion of the navy department, this test was applied to New River coal from West Virginia, with interesting results on coal stored for two years: In fresh water, the loss was 0.000 per cent, from two tests; in salt water a loss of 0.395 per cent was the average of two tests; indoors when the coal was exposed to the air, the loss was 0.383 per cent, according to the average of six tests, while outdoors when uncovered, the loss was 0.997 per cent representing the average of eight tests. When it is remembered that coal reclaimed from the battleship Maine, submerged for 14 years showed a deterioration of about 160 calories or 1.09 per cent, and the test for the navy department showed no loss whatever in two years, it will be seen that of the three forms of coal storage, open-air, under roof and submerged, the latter is by far the most practicable, even though the cost is slightly increased. Not only is there little or no loss of calorific value but the danger of spontaneous combustion entirely is eliminated.

Danger from spontaneous combustion has been often referred to and the risk described. The majority of cases of spontaneous combustion occurs in bituminous coal piles, although fires of that origin in anthracite have frequently been reported, notwithstanding the popular fallacy that this grade is immune. Various methods looking towards its reduction to a minimum have been set forth in the columns of engineering journals and engineers' handbooks. One company installed an intricate system of pipes throughout its storage yard, the branches of which were perforated and had dead-ends. When fire was discovered, water was pumped into the pipes and sluced through the perforations to put the fire out. Authorities agree however that fighting fires in coal piles with water is not at all efficient or desirable, since it only serves to increase the danger of combustion. Iron temperature-divining rods placed at regular intervals through the storage pile have been successfully employed. These serve as indicators of the presence of abnormal heat. They are pulled out at certain specified periods and wherever a dangerous degree of heat is ascertained, the best practice according to the experience of many manufacturers, is to remove the heated portion in its entirety by the use of a crane-operated grab bucket. The removed portion is either used immediately or allowed to burn itself out. Tight stocking preventing air pockets, tends to reduce the danger of such firing.

FIG. 2—COAL-HANDLING BRIDGE CRANE WITH 2½-TON GRAB BUCKET

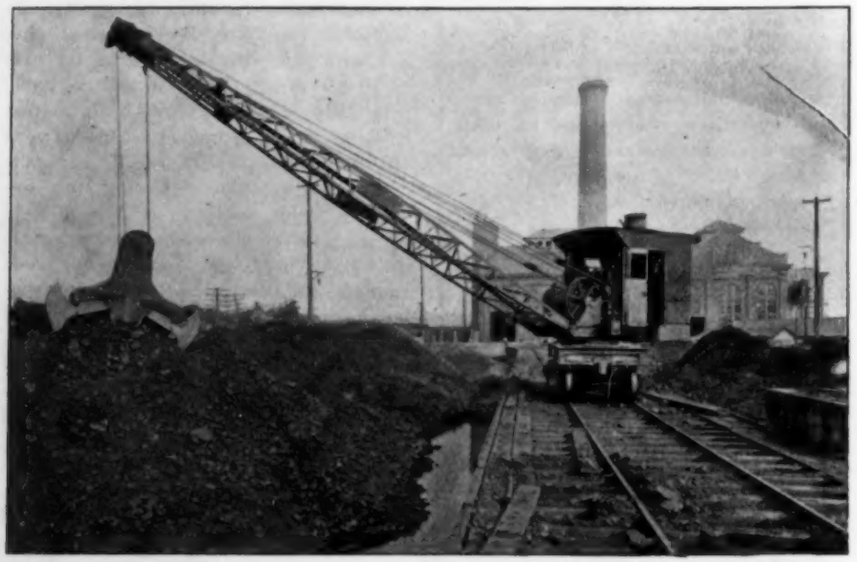


FIG. 1—SUBMERGED COAL STORAGE AT PLANT OF INDIANAPOLIS LIGHT & HEAT CO.

Machinery Reduces Overhead

Since modern equipment such as locomotive traveling, gantry and hammerhead cranes, can be used in many other ways than for handling and storing coal, their use makes for increased economy. Electric magnets and other lifting apparatus, pile driver hammers, pulling and grappling hooks, drag-line and orange-peel buckets to replace the coal and ore grab buckets permit the use of the cranes 24 hours every day if necessary. Thus overhead costs are reduced to a minimum. If however, the crane is used exclusively for coal handling, big economies are effected over the old-fashioned method of storing coal by hand. Three men working 10 hours a day could handle 50 tons per day, while a locomotive traveling crane will handle 60 tons per hour or from 500 to 600 tons per day. Figuring depreciation, 6 per cent interest on investment, upkeep, operator's wages, fuel, oil, etc., at the present time, handling coal by such machinery it is estimated costs between $15 and $17 per day of 10 hours or from 3 to 4 cents per ton, as against 18 to 20 cents per ton by hand. In normal times the cost of machinery handling would be much less.

A few instances from among the many industrial consumers of coal who are attacking the problems are illustrative of the general movement. In Fig 1 is shown submerged coal storage at

FIG. 3—UNLOADING COAL BY LOCOMOTIVE CRANE FROM BARGES

the plant of the Indianapolis Light & Heat Co., Indianapolis. A Brown-hoist locomotive crane operates on a trestle which runs through the center of a concrete tank. This crane has a capacity for handling 75 to 90 tons per hour when loading from storage into cars and from 50 to 60 tons per hour when unloading from cars to storage. It is equipped with a 44 foot boom and a 1½ ton bucket. Coal coming in is either dumped from cars or is unloaded by the crane. When it is needed in the power plant, it is reloaded into cars which are switched into the plant. The capacity of the concrete pit is 30,000 tons, with 13,000 tons under water. Provision is made for heating the water in winter, and electric searchlights are operated to permit night work.

Machines for Up-to-Date Plants

At the plants of the General Electric Co., Schenectady, N. Y., Toledo Light & Power Co., or the Acme Power Co., Toledo, O., the coal-handling bridge crane shown in Fig. 2 is employed. The Corrigan-McKinney Co., and the American Steel & Wire Co., Cleveland, use similar cranes for handling coal for their coke ovens. This crane has a 2½-ton bucket and a span of about 190 feet. The cantilever bucket has a drop of about 35 feet and operates on a rope trolley from the operator's cab located on the pier of the crane. It has a capacity of 135 tons per hour from storage to cars. The bridge travels 200 feet per minute and the bucket hoists with a full load at a speed of 225 feet per minute. The trolley travels 1000 feet per minute. At these storage plants coal is piled from 20 to 24 feet high.

The McKeesport Tin Plate Co., McKeesport, Pa., unloads its coal from barges brought down the river, as shown in Fig. 3. A locomotive crane with a 40-foot boom and having a 1½-ton bucket unloads coal from barges at the rate of between 50 and 55 tons per hour. The company's storage pile extends along the river bank at the rear of the plant. A similar crane is being installed at the plant of the Upson Nut Co., Cleveland.

Unloading coal from barges into a hopper is shown in Fig. 4 at the plant of Brown & Co., Pittsburgh. This locomotive crane on a fixed base, with a 44-foot boom and a 1-ton grab bucket unloads 45 to 55 tons of run-of-mine coal per hour.

Familiar to many iron and steel companies and used to advantage by large numbers of them, the patented circular system of the Link-Belt Co., for storing and reclaiming large bodies of loose materials, such as coal, stone, etc., has been often described. This circular storage plan is recommended for the handling of from 5000 to 100,000 tons and over. It consists of a long radius locomotive crane, equipped with and operating a self-filling grab bucket, traveling on curved tracks around a central point from which the bucket receives its material. The cranes are either steam or electric driven and are constructed entirely of iron and steel, which reduces the danger of damage by fire to a minimum. The Link-Belt Co. builds cranes of this type having a radius up to 110 feet, handling 5-cubic yard buckets and the largest size has been known to handle as much as 240 tons per hour. The New York Edison Co., Jersey City, N. J., maintains an exceedingly high capacity coal storage yard and employs this system. Two 20-foot gage, steam-operated locomotive cranes are used. These have a radius of 100 feet and with their 3½-ton buckets permit the storage of 225,000 tons of coal.

Coal Piled In a Circle

With the use of this system, the pile of coal or other material, assumes a circular contour and when a track pit is used the coal is dumped from railroad cars into the pit, removed by the crane and delivered to storage. Tracks are laid on ties upon the ground, ordinarily without the use of piles. Consequently no great expense is added for trackage. A continuation of the rack system and the formation of additional loops makes possible a series of storage piles and coal storage is limited only by the size of the property. When reloading, the coal is picked up from storage by the bucket and delivered directly into the cars, bin or to the pit at the central point.

Fig. 5, illustrates a section of the storage yard of the Northwestern Iron Co., at Mayville, Wis. This shows a 20-foot gage, electric revolving crane,

FIG. 4—LOCOMOTIVE CRANE ON FIXED BASE UNLOADS 45 TONS OF COAL PER HOUR

FIG. 5—TRACK ARRANGEMENT FOR NORTHWESTERN IRON CO.'S COAL STORAGE AT MAYVILLE, WIS.

with 100-foot radius, utilizing a 3-ton bucket. Practically 100,000 tons is the capacity of this storage equipment. With a smaller outfit, the Lackawanna Steel Co., Buffalo, N. Y., stores 80,000 tons at its West Seneca plant and this 20-foot gage, revolving crane, with 80-foot radius and a 2-ton bucket is shown in Fig. 7.

Hoists Replace Labor

With the scarcity of labor becoming an increasingly important factor in war times, the automatic skip hoists, designed to perform work previously done by manual methods are finding and filling an important place in industry. For the speedy and efficient as well as economical raising of coal and other materials from a low and delivering them to a higher level, the Otis Elevator Co., has designed apparatus, the operation of which is controlled by a push button. This allows the operator to continue with other work, as soon as he has pressed the button marked "up," which causes the machine to commence its automatic travel. It accelerates to full speed, the bucket rises to the upper level and at the proper point the hoist slows down with the bucket traveling into dumping position, where on single skips, it stops and automatically remains for a pre-determined period sufficient for the complete discharge of the material from the bucket. Without additional attention from the operator, the machine starts down and when the bucket reaches the lower level, it automatically stops in the loading position. If desired, the apparatus may be stopped at any time during the operation by pressure on the button marked "stop" and the machine's further operation is directed by pressure on either the "up" or "down" button.

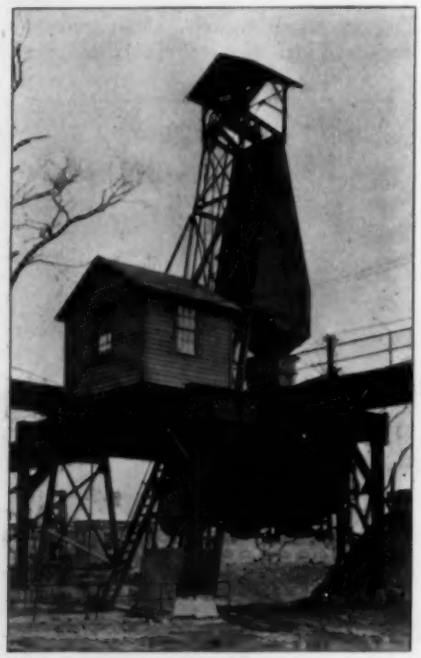


FIG. 6—AUTOMATIC SKIP HOIST WITH BUCKET ASCENDING

Two general classes define the Otis product, namely the hoist with a bucket carrying the load vertically and one whose load travels on an incline. Both may be equipped with a single hoisting bucket, which may or may not require a counterweight, or with two buckets on separate tracks. One of these serves as a counterweight for the other.

Operator May Be Eliminated

By arranging for the automatic loading of the bucket or buckets, it is possible to do away with the operator's services entirely. When a predetermined load is received by the bucket, a contact is made, which is equivalent to pressure on the "up" button. When the bucket ascends, it automatically closes the loading chute gate. In descending, this gate is re-opened and the operation only ceases when the supply of material is not sufficient to fill the bucket. In one recent installation when the skip bucket reaches the lower landing, it automatically opens the track hopper gate. After a pre-determined amount of coal is deposited in the bucket, the spring under the latter is compressed, contact is made and the skip is automatically started again.

Various Uses

These machines are particularly adaptable for taking coal from storage for immediate use, or for transferring coal from a temporary storage level to the permanent storage bed. In power plants, the material is hoisted and dumped into elevated storage bins ready to be delivered by gravity either into cars or to mechanical strokers. In Fig. 6, is shown an Otis automatic inclined coal and ash hoist, with bucket ascending, at the plant of the W. J. Rainey Co., Allison, Pa., coal and coke operator, while in Fig. 8, the equipment used at the Consolidated Electric Light & Power Co.'s plant at Baltimore, Md., is illustrated.

FIG. 7—REVOLVING CRANE EMPLOYED BY LACKAWANNA STEEL CO. BUFFALO, FOR CIRCULAR STORAGE

FIG. 8—COAL-HANDLING EQUIPMENT AT PUBLIC UTILITY PLANT

Trade Papers Live for the Industry

A Discussion of the Relationship Between the Iron and Steel Trade Papers and the Business They Serve—Successful Publications Are Leaders of Thought and Action

BY B. S. STEPHENSON

NOT later than the sixth of June we shall know the tonnage of pig iron produced during the month of May. *The Iron Age* and THE IRON TRADE REVIEW will have this information available in their issues of that date. It will have to be compiled rapidly, for the most part by wire, but it will be accurate, as may be demonstrated when the American Iron and Steel institute publishes its statistics, in elaborate detail, for the six months' period. This is but one of the many substantial services rendered by the trade papers. One regularly records ore tonnages on lower lake docks. Another, a weekly, reports coke shipments from the Connellsville region. All through the summer and fall we shall trace through them the progress in the Great Lakes ore traffic on which the iron and steel industry so largely depends. When navigation closes, within a few weeks we shall know the tonnage shipped from every mine on the Lake Superior ranges.

These services, along with countless others, are accepted as a matter of course, for the trade press is one of the things which American industries commonly take for granted. It has been with us since the days of Bessemer and Kelly, the beginnings of bee-hive coke and the epoch-making shipment of those first few barrels of ore from Marquette. It has developed along with and as a part of the industry, which perhaps explains why we are sometimes prone to overlook its advantages and possibilities.

A Specialized Newspaper

In describing its province, some one has said that the trade journal bears exactly the same relation to the newspaper or general magazine that the engineer or technically-trained man bears to the average citizen. It is a *specialized newspaper*, fitting naturally into the modern scheme of specialized business. Occasionally this specialization runs to rather curious extremes. There are such publications, for instance, as *The Macaroni and Noodle Makers' Journal*, the clientele of which is obvious; *Brooms, Brushes and Handles; The Crow Bar*, which reports 4000 blacksmiths as subscribers; *Sunnyside*, which is a leading publication for undertakers; even *The Angora Journal*, which aims to record everything of interest regarding that particular kind of goat.

A Newark library recently held a trade journal exhibition and showed 1200 publications without presuming to exhaust the list. "Put several hundred such publications together in a small room," commented the librarian, "and you get an effect wonderfully similar to that produced by several hundred business men in a large room. They are dressed in varying degrees of good taste—some of them a little loud—but all of them, always and everywhere, cheerful and optimistic. This, at least, may be set down as a universal trait of trade papers."

This Newark librarian had original ideas of publicity. By his own admission he did not hope to attract many men of his own city to the exhibit. But he did figure on getting it advertised elsewhere, so that Newark men would hear from the outside that something worth while was happening there. "That is the kind of advertising which reaches the Newark man," he observed, "even though it is a very slow process. What we are trying to do is to impress our manufacturers and business men with the amount of current information on their trades. We want to make it available for them and we want especially to foster the trade-journal-reading habit."

* * *

The trade-journal-reading habit! Mark Twain once remarked that he had lived in the world a long, long time and he knew one must never judge an editor by what he puts in his paper. And even if we were inclined to accept the humorist's suggestion, many of us would not be in position to judge, for we have no idea what the editor does put in his paper. In fact, so far as most of us are concerned, it is harly accurate to speak of the trade-journal-*reading* habit, but rather of the trade-journal-*skimming* habit. And yet our trade and technical papers, to quote Mr. Hurley, are the best in the world. They are tools of the industry and they are made to be used.

Doubtless 95 per cent of the members of the American Iron and Steel institute regularly see or have immediate access to the leading publications serving this special field. A goodly portion will say that they are "regular readers", and some of them are. But for far too many of us this reading is of only "a lick and a promise" variety. Probably on an average it amounts to a rather careful survey of a column or two of general market summary, a hurried scanning of certain special market reports in a few important centers, and perhaps a casual glance over the personal and obituary items to see whether any business acquaintances are involved in developments of a noteworthy character. Possibly some pictures may catch the eye or some special article hold the attention for a moment before the paper is tossed aside—exhausted.

This estimate is not an exaggeration. The trade papers are read somewhat

The Truth About the War

A YEAR of war has recast business methods; it has also shifted our centers of news. During that time as our industries have admitted Uncle Sam, first as a by-no-means silent partner and later in the capacity of managing director, Washington's position as a business news center has become supreme. The trade papers were quick to appreciate this new condition and one can now look to them for industrial war news which is at once dependable, technically accurate and free from political flavoring. In particular, their reports of the many investigations which have stirred Washington and the country these last few months, carefully written for the business man's viewpoint, have been in refreshing contrast with the reports in the daily press. And in certain directions it is not too much to say that a careful reading of these business papers during the winter might have saved many of us from the hazards of crowded sleepers and Washington hotels.

A paper read at the annual meeting of the American Iron and Steel institute, New York, May 31, 1918. The author, B. S. Stephenson, is resident agent, M. A. Hanna & Co., Pittsburgh.

more carefully in quiet times, more hastily or not at all in busy periods, but this is a fair average and indicates our general neglect of a service of which our foreign competitors show a full appreciation. The size of our trade journals is often awe-inspiring, it is true, some of them approaching the bulk of a mail-order catalog. But, as a matter of fact, the weekly publications will average only about 64 pages of reading matter, because they are edited with the ever-present idea of condensation. Every line of every page is written with a view to reporting accurately some fact, condition, process or accomplishment of interest either to some special field or to the industry as a whole.

We are told that recently in a certain district some 17,000 homes were visited in the course of an investigation as to the publications read there. In one particular home it was found that the papers read were *The Butchers' Review, The Police Gazette* and *The Christian Herald;* furthermore, *The Christian Herald,* in this case was read by the cook. Now the point is that these publications were read in the home, and it is perhaps pertinent to suggest here that an occasional evening spent quietly at home with your favorite trade paper, whatever it may be, will show results both surprising and profitable.

Besides the strictly technical articles, one will find there much general material of timely interest. For instance, I believe the first satisfactory description of the Browning gun appeared in *The Iron Age.* Likewise *The Foundry* explained the manufacture of the improved rifle grenade which our malleable shops are now turning out by the millions. Recently a column of facts and figures in another publication, detailing the iron ore reserves of Alsace-Lorraine, Luxemburg and the Briey basin made clear the motive governing the direction of the first German drive in this war of steel. And these examples might be multiplied indefinitely, but the intention is merely to emphasize the appeal which the average trade paper can make even to the nontechnical reader.

Applied Efficiency

I hold no brief for the trade journals and the idea here is not to catalog their offerings, but rather to suggest that they merit our better acquaintance. I recall that, a dozen years ago, the owner of a small, isolated blast furnace remarked that he regularly read the several important publications touching his special field. His theory was that, if in the course of a year he could glean from them one good idea applicable to his plant, he would be well repaid. Today his furnace is the last word in equipment and efficiency and his business is highly successful. This plan of closely watching the technical press for practical, working ideas is now followed by many progressive concerns. Ordinarily it consists of a regular, systematic reading by the various executives and heads of departments. Suggestions are noted on a convenient cover slip and these are later discussed at regular conferences, frequently with the result of important improvements and economies. The plan deserves general adoption.

* * *

For many years the industry has found it convenient to use trade journal quotations as a basis for sliding-scale contracts. Pig iron and coke, ingots, billets, sheet bars and other forms of semifinished steel, copper and other nonferrous metals, ingot molds, even gray iron castings are among the products commonly distributed on such an arrangement. There is no means of estimating the volume of business now handled in this way, even in any one line of production, but it is always substantial and at times surprisingly large. During the chaotic price conditions of the early war period, when precedents were being swept away and new levels reached week by week, there was a very extensive recourse to this basis of dealing, as offering the only plan sufficiently flexible to conform to the feverish gymnastics of war time markets. It fitted in with Horace Greeley's sage observation of us, the American people, that "our foresight is not so good as our hindsight by a darn sight."

Just now, because of government price control, the sliding-scale is less extensively employed; yet it is interesting to note that, even during the last calendar year, a single producer in western Pennsylvania supplied a neighboring melter with $12,000,000 or $13,000,000 worth of pig iron invoiced on this flexible basis. When the government schedule was announced in September, the price on this sizable tonnage immediately dropped from around $55 to $36.30. The furnace interest, of course, had realized high prices much earlier than its competitors which were selling on a flat-price contract basis, hence its acceptance of the Washington scale occasioned no great hardships. The fact that the agreed prices automatically became operative on the heavy volume of products moving on sliding scale contracts was an important factor in their prompt acceptance and scrupulous observance by the entire industry.

The Editor's Problem

The sliding-scale system testifies to the accuracy of trade-paper quotations. Incidentally, as well, it increases enormously the responsibility of the editor. In every issue he must tabulate his ideas of current prices, whether or not they happen to be sharply defined. He knows that every written variation of 25 or 50 cents immediately multiplies itself by tens of thousands of tons, to the unfair advantage or disadvantage of some one. Actually he serves in the capacity of referee or arbitrator, and in the interests of justice should have all available information at his command. Yet too often the trade journal men find themselves compelled to pry out the facts from grudging witnesses, to content themselves with half-facts and to piece together scattered bits of obscure information in an effort to arrive at exact market conditions.

To my way of thinking, the point of view which necessitates such methods of news-gathering is radically wrong. It is an inheritance from the dark ages when, in the nature of things, every competitor was an object of suspicion and distrust.

Our entrance into the war opened up to the business papers of the country a new field for substantial service. On the first two Liberty loans they contributed more than 7000 pages of

A Sense of Honor

NOW it is only a fair proposition that if your business or your industry uses trade paper quotations as a basis for actual selling prices their representatives are clearly entitled to enough of your time and confidence to put them in possession of such facts as have a direct bearing on the current market. For obvious reasons, there are always certain developments on which publicity is out of the question. But the biggest men in the industry came to realize, a long while ago, that the trade press would respect their confidence absolutely. And they learned, as well, that the representatives of these papers would welcome a knowledge of facts, which, while they could not be printed, still could be kept in mind in shaping quotations on which they had a bearing. In these latter days the industry has come to regard the trade paper man as one gifted, not with a fine sense of rumor, but with a finely developed sense of honor and discretion. It naturally follows, though indirectly, that the buyer or seller who imparts either information which is untrue or half-facts which mislead by reason of what they do not tell, with the idea of manipulating quotations, should be set down as one whose methods of trading should very properly be watched.

advertising and editorial matter. Late in November the secretary of war sought their assistance in recruiting mechanics and skilled workmen for the aviation section of the signal corps. Only a few weeks then remained until the draft became effective, and the war department intimated it would be well satisfied with 12,000 men before that time. The number actually secured was around 43,000.

Early last summer the war and navy departments were in urgent need of machine designers. A four months' search had produced 40 and the task was then delegated to the editor of *The American Machinist*. Visiting some 17 machinery manufacturing centers, in 12 days he rounded up over 100 designers and persuaded their employers, not only to loan them to the nation, but also to pay the difference between their former salaries and the government limit of $1800 per year.

A Suggestion Accepted

It is also worthy of note that the far-famed Liberty motor had its origin in a trade paper idea. An automobile journal sent a representative to France and England to study airplane motors. He found some 30 types in use. Parts were not interchangeable and men familiar with one type could not operate the others. Astounded at the confusion and loss of efficiency, the editor laid these facts before the proper authorities at Washington, suggesting that America should concentrate on one standardized type. The Liberty motor was the result.

Regiments of road-builders, miners, railway operatives, quarrymen and lumbermen—to mention only a few—have been recruited largely through the efforts of the trade papers in their appropriate fields. They have been a vitalizing force in the several national campaigns for Red Cross and other relief funds. They have helped to mobilize, to readjust, to energize. And particularly during these last 12 or 14 months the work of the iron and steel publications have been such as to assist and to inspire. They have caught and reflected the spirit of that industry, which, we are proud to believe, has led in its wholehearted, enthusiastic response to the war needs of this nation and its allies.

* * *

A year of war has nationalized American business. It has brought a new ideal to dominate our industrial life. It has discarded the old-time considerations of profit and competition and has substituted a new-found incentive which is infinitely bigger. Its demands have speeded up the development of manufacture and trade, so that revolutionizing changes are now made, not in decades, but almost in days.

Along with these new conditions, the war has created a difficult situation in which a diminishing labor supply faces an imperative need for increased production sufficient to offset the things consumed and destroyed in carrying on the conflict. While it is on, and when it is over, when we enter that coming commercial struggle which someone calls "the war after the war", the measure of efficiency will determine the success of any business or any industry. And greater efficiency, as a well-known editor has suggested, "necessarily means a closer as well as keener interest in the experiences of others, livelier appreciation of new ideas, inventions and readjustments of methods. These constitute the very merchandise traded in by the business papers."

Already they are pointing the way in many problems dealing with the labor situation. We need go no further than *The Bulletin* of the American Iron and Steel institute to find whole issues devoted to some phase of the question, safety appliances, model gardens, workmen-owned homes and other matters of working and living conditions which go to make the laboring man interested, contented and self-respecting. It is a hopeful sign that scores and hundreds of American business papers have taken up this important work. There is no denying the force of persistent publicity and when it is coupled with the directional force which comes from a constant interchange of practical ideas, sure and steady progress is certain.

Discusses the Editorial Side

A few months ago a convention of trade journal publishers was held in Chicago. It was featured by an exhaustive discussion of the editorial side of their business, and running all through it we find special emphasis laid on what is termed "the creative idea in editing". "Sitting in an editorial sanctum is a worn-out method," said one of the speakers. "Business papers are now best edited from the field, and preferably in the shirt sleeves."

The old theory was to print the news, just the news and nothing more. Then the trade paper lived *on* its industry. The newer vision is that the trade paper has a far broader service to perform, a mission of leadership in helping the industry to shape its course. When it accomplishes this, the trade paper truly lives *for* its industry.

Trade Journals—A Full-Fledged Ally

BY JAMES R. MILLS

Manager of Sales, Cleveland District, Carnegie Steel Co.

A COLLEGE publication of the Middle West had in recent years for its motto this: "We aim not to mold public opinion, but to scrape the mold off of it." It can hardly be questioned that the iron and steel industry in times past has not given the heed that it should to uninformed and incorrect public opinion. Much of the time it has seemed that the industry was not sufficiently concerned to even attempt to keep off the mold. Yet, in its relations to the trade paper there has happily come a radical change for the better in recent years. In former days, the trade paper in its efforts to get facts, was kept at arm's length, except by a few unscrupulous traders whose effort was to constantly play upon the credulity of the trade journal by reporting purely imaginary transactions for the purpose either of mystifying competitors or indirectly influencing market quotations. Some manufacturers did employ press agents, but these for the most part were so restricted in what they were allowed to tell that they pretty well fitted the nickname given them by newspapermen, of "suppress agents". This attitude did not indicate any particular unfriendliness to the trade journals; it was the period when secrecy was regarded as an absolute essential, both as to important operations and commercial transactions.

The era of candor and co-operation which has followed, and in which this institute has played such an important part, has greatly changed the status of the trade journal. Suspicion of the trade journal has largely gone, along with suspicion of a competitor. With secrecy no longer considered a necessity, the task of a trade journal is greatly simplified. For the trade papers themselves, it must be said that in the changing conditions of the last 20 years they have fought as privates in the ranks, making common cause of all that is vital to the industry.

Mr. Stephenson has shown how

much of a necessity the trade journal has become, and how important is the information it gives us from week to week. In the broader field of informing public opinion the present times are giving new importance to the trade journal. In the notable work of Ivy L. Lee, in developing the public relations of the Pennsylvania railroad, Mr. Lee's aim was two-fold; first, to interpret to the directors and officials of the Pennsylvania railroad the opinions and feelings of their employes and of the public, their patrons; second, to interpret to the public the aims and purposes of the Pennsylvania railroad. Today there is scarcely an industry that is not vitally interested in what the steel trade is doing, and to a great many people this industry has become the commercial pathfinder. In interpreting to the public and to employes the aims and purposes of the iron and steel industry the trade journal fulfills one of its greatest services. It is the spokesman of the industry because no other agency has the background to fully comprehend the significance of what is occurring. The daily press, however willing, cannot do this. We heartily second Mr. Stephenson's plea that the trade paper be treated as a full-fledged ally entitled to our fullest confidence and cooperation.

Industry Needs Business Papers

BY A. O. BACKERT
Vice President, Penton Publishing Co.

IF YOU can imagine the existence of the iron and steel business without its trade papers, or the publication of the iron and steel trade papers without the great business of which you are a part, you will establish the relation that the one bears to the other. Let us first consider your industry without its trade papers. A condition of chaos would reign. You would grope in the darkness of misinformation or no information. You would be isolated almost as completely as the far-famed inhabitants of the South Sea islands. And without the trade papers you would be the target for the insidious, yellow-dog enemy propaganda that blazes-up in the by-ways while the spotlight is turned only on the highways. Progress in manufacturing methods would be halted and industry again would return to the era when the secrets of the arts were handed down from father to son. This is assuming much for the province of the trade papers, yet it might be said, with becoming modesty, that there is much to assume. And as for the iron and steel trade papers without the iron and steel business, there simply would be none.

Thrown to the Winds

But the term "trade", in its reference to these publications long since has been consigned to the discard. It smacked too much of barter and exchange. It recalled too vividly to the publishers the day when the paste pot and the shears were the editor's principal weapons of offense and defense. It reminded them also of that oleageneous, silk-hatted, frock-coated individual whom they employed in the guise of an advertising solicitor, but who instead accepted alms from the manufacturers, which were bestowed with grudging charity. But the paste pot and shears long since have yielded to the editorial staff of highly trained, energetic, up-to-the minute news gatherers. The editor has discontinued the sport of entering the seat of his trousers in a friction contest with the seat of his chair, while silk-hat Harry has been replaced by the advertising specialist who is versed in business building by properly-directed publicity aimed only at the man who is interested. This has been the evolution of the trade paper to the business paper and the business papers of the iron and steel manufacturers, in influence, scope and importance have paralleled the progress of and measure up to the great metal-working industry of which they are a component part.

What is the province of these publications? To disseminate news and information in a specialized field. To record the improvements in processes of today that will be the standard textbook practices of tomorrow. To present the experiences of one manufacturer so that the other may profit thereby. To point out to the industry loftier ideals to be striven for, but never attained. And as so aptly stated in a quotation in Stephenson's able paper, "these constitute the very merchandise traded in by the business paper". As merchandise it must conform to the latest and most modern styles and these change every day, every week or every month, depending upon the frequency of publication.

When you build a blast furnace you expect to operate it day in and day out, year in and year out along definite, standardized lines. You occasionally make a cast of off iron or blow off the top of the stack, yet your practice remains the same—it is standardized. The same is true of your mills, your steel furnaces and your converters. Now contrast your methods with those of the publisher. He cannot shut down for relining or because of a breakdown. His paper must be issued at the specified time regardless of contingencies. His publication cannot have an off-cast, since every inaccuracy will be caught by thousands of eyes. When one issue is off the press another must be constructed immediately. It must be fashioned to a different pattern than the previous number. It must have a new style, different make-up, and, if possible, a greater appeal than the previous issue. The publisher's practice is just the reverse of standard.

The successful editor of a business paper must be a human paradox. He must have no friends. He must have many friends. He must have no friends in the sense that his loyalty to them would warp his better judgment. He must have many friends upon whom he may depend as reliable sources of news and information. At one glance his vision must take in every point of the compass, for he has a solemn duty to perform alike for the backwoods foundryman and the producer of millions of tons of steel. Both are purchasers of the only merchandise at the disposal of the editor and the interests of both must be conserved.

Editor Between Two Fires

Before Uncle Sam wiped out the law of supply and demand as affecting iron and steel prices, the editor of the iron and steel paper held a position in no man's land, a target for sniping buyers and sellers. In a declining market he was assailed by the producers. In an advancing market, by the consumers. He was damned if he did and damned if he didn't. But government control has brought him relief and, temporarily at least, he is enjoying a much needed rest from the barrage that both sides formerly directed toward him.

For every human being the editorial sanctum of a publishing house holds enticing allurements. We all like to

see our thoughts in print. Every one of us, at some time or other, has cherished the conviction that he could write a play, sing a song or write for publication. And the latter desire occasionally also adds to the pleasantries of the editor's otherwise prosaic existence. When he receives a manuscript accompanied by a request that not one comma be changed, despite obvious grammatical errors, he must assume the role of a diplomat to appease the contributor. Yet communications and articles are invited and keenly sought and it is unfortunate that our American iron and steel manufacturers have been so engaged with the business at hand that they have not developed the writing habit to the same extent as men similarly employed in other important iron and steel producing countries.

Recently much ado has been raised over the paucity of text matter in our business papers as compared with the bulk of advertising. The business paper only performs its function when it builds for the busy business man. Reams and reams of manuscript are condensed to meet the needs of the reader whose time is drawn upon more heavily today than ever before. Twice the number of editorial pages could be printed, but with no obvious advantage, when the information can be presented more effectively in one-half the space. The iron and steel business paper is the fine-meshed screen through which news and information of value to the trade is sieved.

Long before the business papers of your industry attained their present place of importance and value, that great iron master, whom we all love and esteem—Andrew Carnegie—was outspoken in his warm and wholehearted appreciation of the function performed by them. You, too, have come to a like conviction as evidenced by the kindly receptions you accord both their editorial and advertising representatives.

Figures are Exaggerated

The business paper is so busily engaged directing attention to the developments of the day and the deeds and accomplishments of others, that its own great achievements pass unnoticed. Nearly two decades ago a strike of steel workers beset the industry. It was known among steel manufacturers that the number of men engaged in this strike as stated by the daily press was grossly exaggerated. But in the absence of definite information these mis-statements could not be corrected. It was one of your business papers that dug out the actual membership of this organization and it had the temerity to print these figures. These showed a shrinkage of over 2000 per cent as compared with the fiction fed to the daily press. Nor did this trade paper consider it had performed its function with its publication of these figures. Its editor saw to it that they were distributed broadcast by the news agencies, with due credit to the business paper. These figures were accepted without question by the news agencies because of the established reputation for accuracy of the business paper that gave them out. And public sentiment, when it realized how it had been duped, was crystallized against this strike which soon faded into the horizon.

To serve the interests of producer and consumer, large or small, at all times, is the greatest function of the iron and steel business paper. Information frequently is printed that hurts either maker or user. A case in point is the practice indulged in at one time of granting a concession to certain organized consumers for their year's requirements, which was not given to others. Every effort was made to conceal this practice and the news gatherers for the business papers displayed equal energy in attempting to obtain accurate information concerning it. And the information was obtained and was published. It resulted in concessions all along the line and represented great financial losses to the steel producers and proportionate gains for the consumers not previously preferred. This practice long since has been discontinued. It is an adage of the editorial departments of the business papers that every line has its soft spot; that information concerning a transaction, regardless of how carefully guarded is obtainable, if sought for diligently enough.

Within a year the entire phase of the iron and steel industry has been changed and with it every phase of the publication of its business papers. The bulwark of their market quotations has been uprooted and replaced by prices fixed by the government. The center of activity has been transplanted from Pittsburgh, New York, Chicago and Cleveland to Washington. Not content to follow, the business papers lead in this great transition. Editorial offices already established at Washington were enlarged to cope with the ever-growing importance of this center. With the rapid-fire changes that affect every previous method of business conduct, the iron and steel papers are serving a greater function today than ever before in their history. It is to them that the manufacturer turns for information concerning almost over-night developments and it is in them that he places his trust because of their established reputation for accuracy.

And in this and other ways the iron and steel papers are attempting to serve their country. When every producer and consumer of iron and steel products in the land was hungry for every bit of news concerning agreed prices the business papers furnished it to him. They sought out every hamlet and village where iron or steel was fashioned and carried the information to the manufacturer, wherever he was located. No agency is provided for the dissemination of this vital information other than the business papers.

Wherever the fortunes of this great conflict lead, the business papers will follow. They know their duty and may be depended upon to perform it, whatever contingencies may arise. And the business papers of your industry join you in pledging to the government their supreme efforts and their every resource to win this war.

Ready to Build Mill

The United Steel Co., Everett, Wash., is to start at once on erection of its buildings here and bids now are being received. The main building is to be 70 x 200 feet. It is the intention of the company to manufacture merchant steel and iron bars, including squares, rounds, flats, angles, tees, channels, concrete reinforcing, corrugated, twisted and special shapes. J. Johnson, general manager, states that all necessary machinery has been provided for. A considerable portion of it will be constructed locally at the plant of the Bayside Iron Works. A crane has been purchased. Two large magnets will be installed for handling scrap.

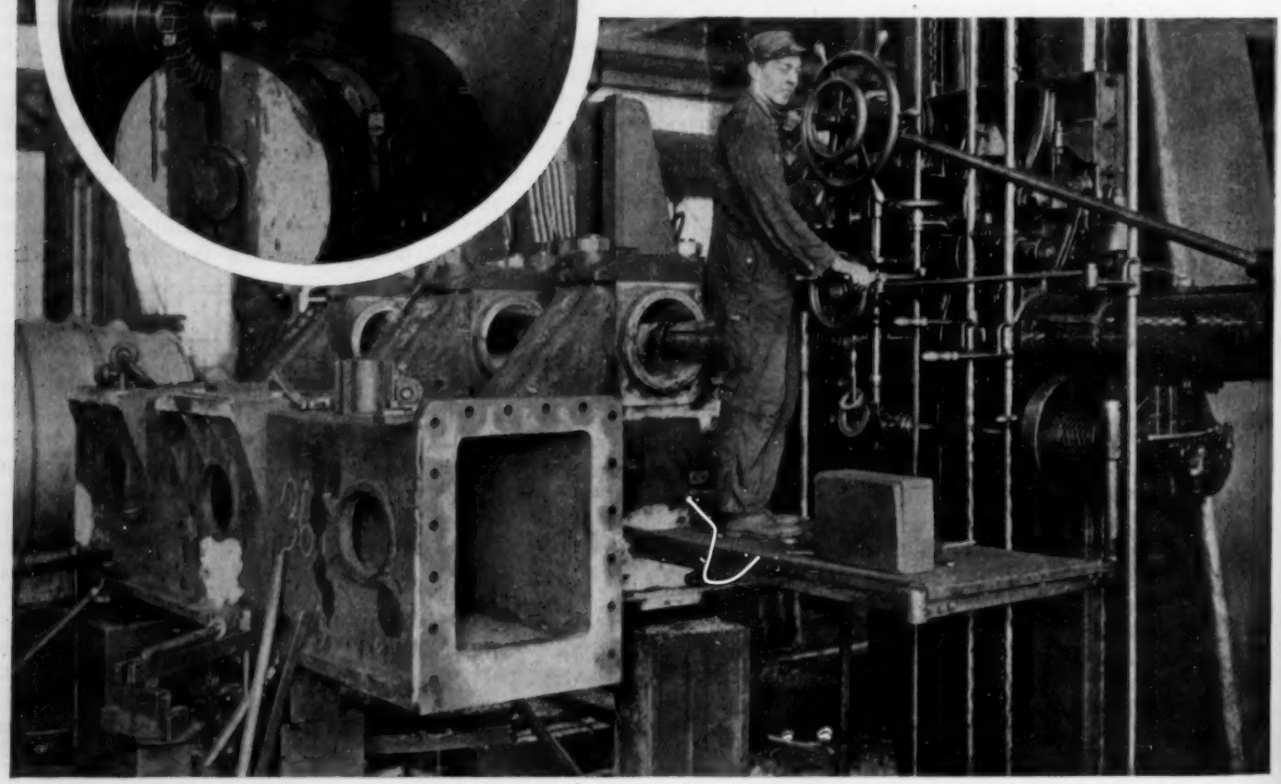
Builds Washing Plant

A washing plant of 1200 tons capacity is being built at the coal mines of the Dayton Coal, Iron & Railway Co., Dayton, Tenn. The company has not been able to obtain a supply of coke to operate its stacks, so that development work is being rushed at its coal mines and coke oven plant preparatory to blowing in its furnaces. Little repair work will be necessary at the blast furnaces and it is expected that within 60 to 90 days the ovens will be producing enough coke made from washed coal to accommodate the stacks.

Keeping Up With Launchings in the M

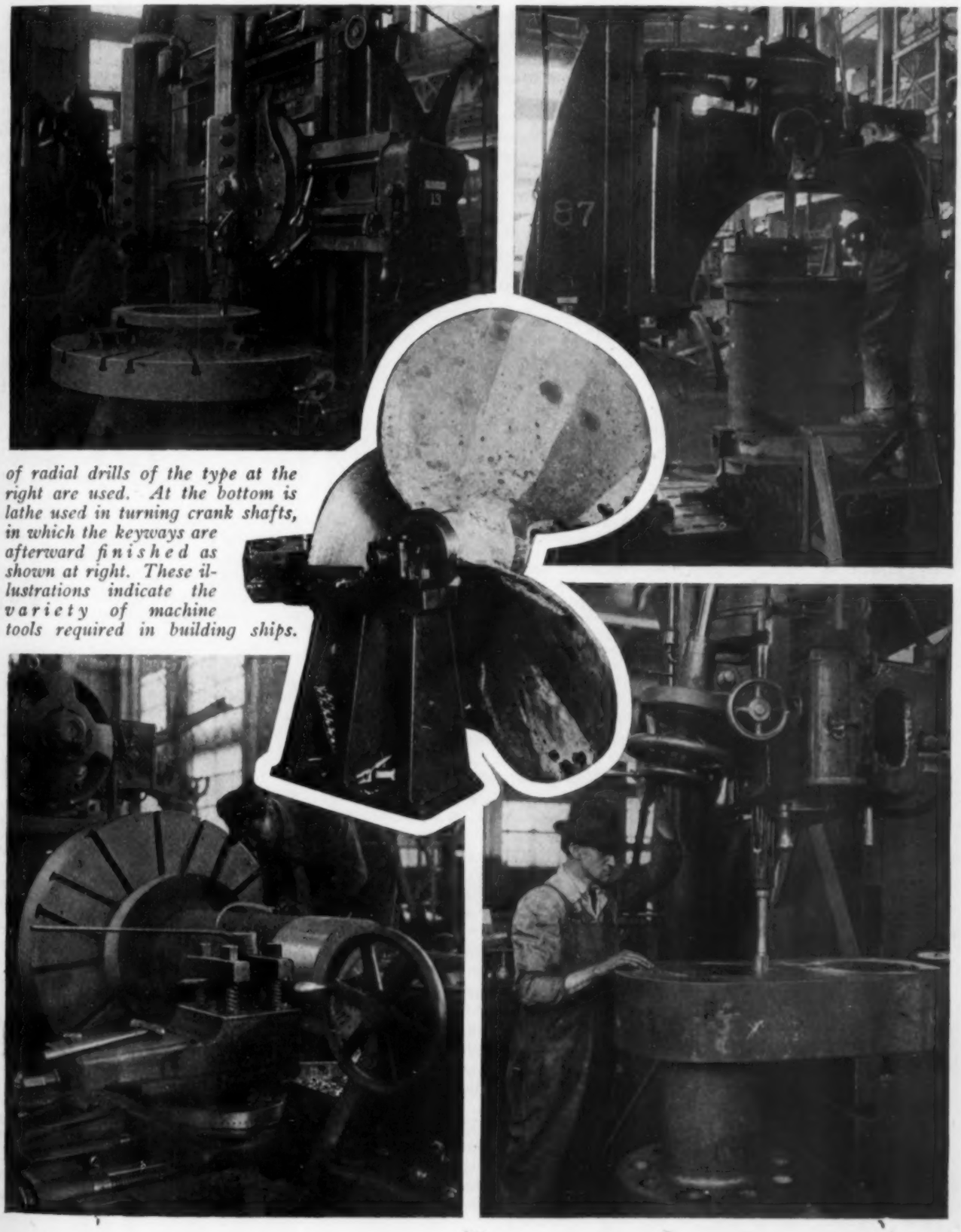
The Diversity of Machine Work Required in Ship Construction

A ROUGH finishing lathe operation is shown above, while in the insert a miller is cutting a slot in the flange of a turbine rotor shaft. Below is a horizontal boring machine employed on heavy engine castings. In the center of the opposite page is a propeller mounted for planing the blades. The vertical boring mill shown at the top of that page is used for finishing the inside of cylinders. A great number



Machine Shops Throughout America

is Indicated by the Accompanying Shop Illustrations



of radial drills of the type at the right are used. At the bottom is lathe used in turning crank shafts, in which the keyways are afterward finished as shown at right. These illustrations indicate the variety of machine tools required in building ships.

Saving Manganese in Steelmaking

Curtailment of High Metallic Ore Imports Makes Necessary Reduction of Manganese Used and the Substitution of 60 Per Cent Ferro in Place of Customary 80 Per Cent in Steel Corporation Plants

BY A. N. DIEHL
Assistant to Vice President, Carnegie Steel Co.

THIS problem of manganese conservation divides itself automatically in two parts, namely, preparing the ferroalloys to the best advantage of the available ore supply, and ultimate use of the same alloy, and consuming the alloys to the best economic advantage, with regard to the proportionate supply, and adequate practice supervision.

In the United States manganese ore is scattered. It is found generally in pockets causing irregular production. No small proportion is high in phosphorus content. Any low phosphorus ore containing over 6 to 1 ratio between iron and manganese with a content of 40 per cent iron or over, might be considered as a source of recarburizing manganese. Mixtures of such lower grade ores with higher ones can be varied to produce any predetermined alloy, depending on the metallic ratios. A study of this phase after a canvass of the deposits might be made to determine if any grade between the commonly called ferromanganese and spiegel grades would be desirable.

Since manganese alloys with iron in practically all proportions, the terms manganiferous pig iron, spiegel and ferromanganese are merely arbitrary trade demarcations, but on account of their specific uses, have been often considered as alloys having different inherent qualities.

The production of 80 per cent ferromanganese requires ore of high metallic content, which is mostly imported. Transportation conditions make it absolutely necessary to use such cargoes to the best advantage by mixing with our native production in such manner as to make the greatest quantity of the latter available as an alloy. This will result in the application of lower alloys than those to which we have been accustomed. The application of the spiegel cupola practice, principally for low grade alloys, is extremely flexible, and a manufacturer of high carbon steel, especially in quantity, should consider such installation carefully. In most cupola practice, the alloy is diluted with pig iron to 5 or 6 per cent of manganese, depending on carbon and manganese specifications. A 16 per cent alloy cannot be used in open-hearth practice for carbon below 0.25 to 0.30 per cent and a portion of it will, at least, have to be melted or charged in the furnace.

Methods of Addition

Manganese is introduced in the steel in several different ways:

(1) In the ladle cold, or heated as is generally done in the bessemer process with a loss of 20 to 25 per cent.

(2) In the open-hearth furnace, where it is melted with the bath and having an accompanying loss of 50 per cent.

(3) As a combination of the two former methods where conditions are heavy with an average loss of approximately 50 per cent.

(4) In the molten condition introduced into the ladle with a loss of 15 to 20 per cent in spiegel and 20 per cent loss in ferro, or as in manganiferous pig iron recarburization where it is poured through the furnace showing a loss of 25 to 30 per cent. Such manganese should be considered as constituent of the iron rather than in the recarburizer class.

The chemical range of the carbon content, in the iron manganese alloy of 95 to 2, and 12 to 80 proportion, is approximately from 3.75 to 6.50 per cent, increasing gradually through the different ranges with slight variation, due to the other metalloids. As the carbon range is thus comparatively small, the manganese content is the principal factor determining which should be the proper alloy to use.

As long as 80 per cent ferro was available, the cold, ladle addition was the most economic course to pursue, and should be utilized to the fullest extent with the more diluted grades. Cold ladle additions up to 30 pounds per ton, should not be excessive. We have used 40 pounds per ton in 60-ton heats at a number of plants. Care in heat manipulation, however, is necessary in such cases. Obviously, the carbon requirement will be the determining factor. The Carnegie Steel Co., as well as other subsidiaries of the United States Steel Corp., for a considerable period have been using 60 per cent ferro as a substitute for the 80 per cent grade with equally good results. The only change noticed was a slight raise in the carbon limits, the low practical limit being about 0.12 per cent carbon. With a 50 per cent grade, making 0.50 per cent manganese steel, the carbon low limit would be about 0.16 per cent. All higher carbon or manganese specifications can be met without difficulty. The United States Steel Corp. has changed its spiegel grade to 16 per cent manganese with a prospect of still further reduction.

However, the greatest real conservation will be centered in the judgment and activity of the operator. He must appreciate the urgency and expediency of such effort. It might be well to add a few reminders in the form of "Do Nots" which while well known, are sometimes overlooked. They may serve either to close an avenue of loss, or as an idea inspiring additional investigation.

Do not, as an industry, retard your quality or quantity to any appreciable extent.

Do not forget that the foreign supply of manganese ore is largely embargoed, and water transportation almost prohibitive, and also that steel, up to the present date, cannot be made without manganese.

Do not overlook the fact that there are some low manganese deposits in this country which must be utilized to increase the available supply necessary to carry on full operations.

Do not, as a manufacturer of manganese alloy, allow any wastage of metallic content beyond what is absolutely necessary, and keep the percentage of fines to a minimum. Large lumps will sink into the bath while the fines will often be lost in the slag. Keep alloy away from moisture. Be careful to keep grades separated and ores properly analyzed, and mixed for specific grades.

Do not, as a manganese alloy consumer, allow melters and helpers to cover bad melting practice by large additions of manganese to restore over-oxydized conditions in the furnace. Proper attention to the melting of heats will save both manganese and money.

Do not use high grade alloy when a lower will suffice, as in our native

This articles was abstracted from the discussion of the paper by C. R. Ellicott on "Manganese Conservation," read before the fourteenth general meeting of the American Iron and Steel institute, at New York City, May 31. The paper was published in the June 6 issue of THE IRON TRADE REVIEW.

supply, the low grade ore is greatly predominant. Melting the recarburizer and pouring direct into the ladle, thereby being able to use a low alloy, should be done wherever justifiable and practicable. Also do not waste high manganese scrap or slag having the proper chemical contents for recovery. The scrap can be used in spiegel cupolas.

Do not put any alloy into the furnace direct, until the maximum of cold ladle additions are made. Preheat if deemed advisable. Authorities differ as to this, but we may assist in solving the controversy. Some few specifications will require a washing, and others excessive amounts of manganese, which must be furnace additions, but the most conservative methods should be applied in accomplishing the purpose.

Do not overlook the manganese in pig iron when it can be used to recarburize, as its manganese can be of great use, especially in high-carbon, low manganese specifications, also high-manganese iron will give three to five points more residual than a lower one, thus making available a supply otherwise wasted, as this manganese could not be considered under the recarburizer grade.

Do not forget that high carbon heats caught "coming down" will retain a high residual manganese if a 50-50 iron and scrap charge and no run-off slag is used; 0.20 to 0.25 per cent may be saved in many cases. With a run-off slag, the manganese is mostly lost.

Do not, as a steel consumer, insist on a maximum manganese specification if one of lesser chemistry is equally applicable, and possible, of performing the same duty. The steel manufacturer must still meet the requirements and will not go beyond a point where the product may be affected, also some of the native ores contain considerable phosphorus, and a high limit to 0.06 or 0.07 in open-hearth and a few points in bessemer steel will not affect a hardship in many cases, especially in material where a little risk is encountered.

These "do nots" may outline a few of the ways saving might be effected. They are offered, not as a manufacturer's request, but as an urgent call for a general manganese conservation rally. The subject is of sufficient importance to justify every manufacturer or consumer to be equally concerned, and aid by every possible means, the conservation of this necessary element, as well as to make available a portion of our native resources, for which we have heretofore been dependent on other nations.

To Utilize Domestic Ores

BY G. B. WATERHOUSE
Metallurgical Engineer, Lackawanna Steel Co.

MANGANESE supply and conservation is a large subject and to us as steelmakers and steel users it is a vital one, since manganese has to be carefully considered in the making of every pound of steel. Because it is important, the subject has engaged the attention of various groups of men for many months. The American Iron and Steel institute may take pride in the fact that its subcommittee on ferroalloys has done and is doing some of the most valuable work in this connection in the country today. At a recent meeting called by the subcommittee in Pittsburgh, the decision was reached that standard ferromanganese should be lowered from 80 per cent to 70 per cent manganese, and standard spiegeleisen from 20 to 16 per cent manganese. This decision makes available large tonnages of ores in this country. Also our subcommittee is working in the closest touch with the United States shipping board, and the war industries board. The present arrangement with the former is that ship tonnage will be provided for the importation from Brazil of 35,000 tons per month of high grade manganese ore. Also the bureau of mines must be mentioned. This quiet but most efficient branch of the government service has been indefatigable in following up and placing on record all possible sources of supply in this country. It is also working with the steelmakers along the lines of the proper use and conservation of the various grades of manganese alloys when produced.

These various agencies have occupied themselves mainly with the obtaining of the necessary supplies of manganese alloys. It remains for us, as steelmakers and users, to devote our best efforts toward the proper and economical use of the alloys when made. There are numerous definite ways in which our own domestic manganese resources can be utilized without restricting the output or lowering the quality of the steel made, for two of the most important factors of this big subject are that tonnage must not be reduced, nor must quality be lowered.

As has been pointed out, the ordinary low carbon steels constitute about 50 per cent of the country's production. For the majority of these steels the low limit of the manganese specification should be removed entirely, which would allow the steelmaker to furnish steel with approximately 10 points less manganese than at present. This in itself would bring about a great saving, and by the use of a 70 per cent or even a 60 per cent ferroalloy, the domestic manganese ores could be drawn on to a much larger extent than at present.

Residual in Bath Increased

By making special arrangements and paying attention to local conditions the manganese in the basic open-hearth charge can be raised in many cases. This will bring about important results, among them being an increase in the residual manganese in the bath, and this in itself will greatly reduce the final additions of manganese alloy necessary. This is such an important matter, one that can lead to such great savings, and one so little understood even by open-hearth men, that a little more may be said on it. In the case of ordinary open-hearth plate, let us assume that the specifications are so changed that the steelmaker can safely aim at 0.35 per cent manganese in the finished steel. If the residual manganese in his bath is 0.10 per cent, then enough manganese alloy has to be added to take care of the oxidation loss and introduce 0.25 per cent into the steel. Now by making suitable arrangements let us assume that the manganese in the original charge is raised so that the residual manganese in the bath is 0.20 per cent. He then has to add enough alloy to his metal to take care of the oxidation loss (which in this case will be less) and to introduce only 15 per cent into the steel. This means a direct saving in final ferromanganese additions of 40 to 50 per cent. Nothing has been assumed but what is feasible, workable, and can be carried out in practice.

Utilizing Low-Grade Alloys

Another very important class of ordinary steels contains, 0.35 per cent and upwards of carbon, and at the present time constitutes certainly 25 per cent of the country's output. It includes all the rail and shell steel, and many forging steels. It would be injudicious to change the manganese specification in many of these steels, but some saving could be brought about by paying attention to the residual manganese in the bath. The most constructive work, however, in regard to these steels, and the greatest measure of conservation would be to adopt methods that would utilize the low manganese alloys. That is methods of adding manganese similar to those suggested

by Mr. Ellicott, two of which may be quoted:

(c) Melting spiegel in a cupola and adding direct or diluted into the steel ladle.

(d) Adding about 5 per cent manganiferous pig iron from mixer or cupola to furnace or ladle.

We have followed a method of this kind at the Lackawanna Steel Co. for a number of years in making these grades of steel, and a few details may be of interest. For instance, in making rail steel the open-hearth bath is tapped with 0.15 per cent carbon, and an addition of molten spiegel mixture is made in the steel ladle that will add the desired amounts of carbon, manganese and silicon. The usual practice on rail steel is to charge into the spiegel cupola a mixture of spiegeleisen and pig iron that will average 6½ per cent manganese, and the usual amount of molten spiegel is 28,000 pounds for a heat giving 100 tons of ingots. On shell steel the spiegel mixture charged into the cupola averages 9 per cent manganese, and the amount of molten spiegel added to the steel ladle is 14,000 pounds for a heat giving 100 tons of ingots. Such a method is entirely practicable, as may be judged from the fact that we use it in making about 50,000 tons of ingots each month. It does not interfere with the output but on the contrary, helps to increase the tonnage, and as regards quality, gives material that is remarkably uniform from one ingot to another, that rolls well, and that can be confidently subjected to the most rigid tests. There is no doubt that along the lines of methods similar to ours, and of methods (c) and (d) given above, the use of ferromanganese can be largely done away with in making these grades of steel, and a conservation of manganese be brought about that will be of great importance, because the low manganese ores of this country can be used in making the alloys required. It may be mentioned that President E. A. S. Clarke of the Lackawanna Steel Co., has publicly stated that we stand ready at any time to explain and show our method of using spiegel, and to do all we can to enable others to work out similar methods.

Norway Uses Substitutes

BY DR. J. W. RICHARDS

Professor of Metallurgy, Lehigh University

THE use of manganese to fill unnecessary specifications is certainly one which should receive immediate and effective attention. It is a clear waste.

A source of manganese for blast furnaces, not at present utilized, is the slags from spiegel furnaces. These contain considerable manganese. They would be self-flexing in the blast furnace, and a considerable proportion of their manganese saved.

A friend of mine, Mr. Poulsson of the Staranger Steel Works, in Norway, confirms the fact that spiegeleisen of quite low grade can effectively replace ferromanganese in most steels, and that calcium carbide can be partly substituted for ferromanganese in deoxidizing steel. In a recent letter to me he states that 10 to 12 per cent spiegel, or even 8 to 10 per cent can replace ferromanganese entirely in all grades of rail steel. The spiegel should be melted in an electric furnace to preserve the manganese and keep down the carbon, and not in cupolas. Necessary silicon can be added as ferrosilicon.

For soft steel, such as steel plates, angles, etc., the 80 per cent ferromanganese can be replaced by half its weight of 60 per cent ferromanganese, if calcium carbide is substituted for the other half. For instance, in place of 8 to 12 pounds of 80 per cent ferro, 4 to 6 pounds of 60 per cent ferro is used in conjunction with 14 to 16 pounds of calcium carbide. The latter is used in pieces 0.3 to 0.4 inch in diameter, is mixed with the ferro and thrown to the bottom of the ladle. The steel is poured upon the mixture, special care being taken that the steel strikes the carbide before the slag comes in. This is most easy to accomplish when using a tilting furnace. Additional deoxidation if required, can be done by powdered 50 per cent ferrosilicon and aluminum. The exact quantity of carbide to use for any steel can be easily found by a little experimenting.

Calcium carbide can thus be employed to diminish our manganese requirements. Whether it is commercially possible or not depends on the relative cost of 80 per cent ferro, 60 per cent ferro, and calcium carbide.

By the use of such and similar practices, by saving our manganese wherever possible and by increasing our domestic production as fast as possible, we can feel assured that within a short time this country will be independent of importations, and that the precious ships now used to bring in high grade manganese ores can be diverted to more useful and patriotic service for our army and navy.

Gives Ore Analyses

Complete average cargo analyses of Lake Superior iron ores for the season of 1917 are given in a booklet now being distributed by the Lake Superior Iron Ore association, Cleveland. Ores from the six large ranges in the Lake Superior district as well as from the Michipicoten and Sudbury districts of Canada are included.

Receives Edison Medal

For his work in the science and art of telephone engineering, the American Institute of Electrical Engineers awarded the Edison medal to John Joseph Carty at its annual meeting in the Engineering Societies building, 29 West Thirty-ninth street, New York, recently. Mr. Carty has received a commission as colonel in the signal corps of the United States army and holds degrees from various institutions. He also has received the following medals: Edward Longstreth, Franklin, Imperial Order of the Rising Sun, Imperial Order of the Sacred Treasure of the Meigi. Col. Carty was introduced by Michael I. Pupin, chairman of the engineering foundation and presentation of the medal by W. Rice Jr., president of the institute, followed. Previous holders of this medal are: Elihu Thomson (1909); Frank J. Sprague (1910); George Westinghouse (1911); William Stanley (1912); Charles F. Brush (1913); Alexander Graham Bell (1914) and Nikola Tesla (1916).

Pattern Makers Organize

To promote closer business relations among firms engaged in the production of wood and metal patterns, the Interstate Pattern Manufacturers' association has been organized and has established headquarters at Columbus, O., in charge of T. T. McGuire, secretary. Officers of this organization follow: President, E. F. Ball, Newark Stamping & Foundry Co., Newark, O., and vice president, Max A. Sills, Superior Pattern Works, Cleveland. In addition to the officers the following constitute the board of directors: E. O. Melvin, Melvin Bros., Columbus, O.; A. E. Schuchert, A. E. Schuchert Pattern Works, Cincinnati; Charles D. Smith, Morner & Smith, Dayton, O.; and J. H. Bridge, Maumee Pattern Co., Toledo, O.

Study Phosphorous Effect in Steel

Soft Acid and Basic Open-Hearth Material is Investigated to Determine the Influence of Varied Proportions of this Element in the Fabrication of Finished Articles Which Require Severe Cold Working in Their Production

BY. J. S. UNGER

EVERY metallurgist knows that phosphorus adds hardness to steel in the same manner that carbon or any true hardening element does. Many persons believe that, in addition, it produces brittleness or what is called cold shortness. Soft or low-carbon steels are made up in the cold state into many articles requiring severe stamping, pressing, drawing, bending or upsetting operations. Articles of medium or high-carbon steel requiring such operations are usually worked hot, giving little opportunity to observe their properties until after they have become cold.

Soft steels for use in articles requiring severe cold working in their production are rarely tested by means of physical tests, the fitness or unfitness of the steel being determined by the ability to fabricate the steel and meet the requirements of ordinary service. For this reason more attention was given to the fabrication of finished articles in this investigation, although physical tests of various kinds were made. Large numbers of the several articles were made up cold in a practical way, the aim being to carry out the experiment in accordance with current conditions, being careful not to change the shop conditions or methods of operating at any particular plant. By making a considerable number of each article, a fair average result was obtained, which is considered to be truly representative of regular shop practice. The steels were not given any special heat treatment, excepting such as is regularly given to ordinary soft steels, for instance the annealing of sheets or the pickling and annealing of wire. The effects of heat treatment was not studied, as soft steels are rarely heat treated.

Table I

Composition of Steel Used

Grade	C	Mn	P	S	Si	Cu
Acid O. H. (Ladle Anal.)	.12	.36	.032	.036	.020	.014
3 ingots			.058			
3 ingots			.085			
3 ingots			.115			
Basic O. H. (Ladle Anal.)	.12	.36	.008	.037	.022	.012
3 ingots			.030			
3 ingots			.052			
3 ingots			.080			
3 ingots			.110			

Twelve ingots from the same heat of acid steel and 15 from the same heat of basic open-hearth steel, or 84 tons in all were used in this experiment. The normal composition of each steel is given in Table I. After the first three basic ingots had been poured, a sufficient amount of 17 per cent powdered ferrophosphorus was added during the pouring of the next three ingots to increase the phosphorus to 0.030 per cent. To the following three ingots the addition was increased to show a phosphorus content of 0.055 per cent, the next three to 0.085 per cent and the next three to 0.110 per cent phosphorus. The same method was adopted in the ingot additions to the acid steel, excepting that only three sets of three ingots each had additions of ferrophosphorus made to them, as the original phosphorus in the steel was higher to begin with.

The ferrophosphorus additions to the last set of ingots of each steel raised the phosphorus considerably above that regularly found in either acid or basic open-hearth steel, but these additions were made to secure steels containing as much phosphorus as is ordinarily found in bessemer steel. Any higher phosphorus content than that found in bessemer steel was of no practical value, consequently, a study of steels containing higher percentages of phosphorus was not considered. The method described furnished steels practically alike in every particular, except in the amount of phosphorus they contained; therefore any differences found in the tests or finished products could be attributed to the phosphorus content. All the phosphorus in the ferrophosphorus was absorbed by the molten steel without appreciable loss. The amount of phosphorus found in the ingots and the various steel articles checked the phosphorus additions closely. These

Table II

Longitudinal Tensile Tests on Sheet Bar 0.467 Inch Thick

Kind of steel	Phos. content	Elastic limit lbs. per sq. in.	Ultimate strength lbs. per sq. in.	Elongation in 8-in. per cent	Reduction of area per cent
Acid O. H.	0.032	30,750	54,280	29.3	58.7
Acid O. H.	0.058	31,215	57,290	32.0	58.7
Acid O. H.	0.085	33,120	59,200	30.6	57.1
Acid O. H.	0.115	35,665	62,070	29.4	47.0
Basic O. H.	0.008	29,130	50,780	34.3	61.0
Basic O. H.	0.030	30,405	51,940	32.4	63.2
Basic O. H.	0.052	30,675	54,350	32.4	62.6
Basic O. H.	0.080	30,540	55,820	31.2	56.8
Basic O. H.	0.110	32,550	58,635	31.2	55.9

Table III

Transverse Tensile Tests on Sheet Bar 0.467 Inch Thick

Kind of steel	Phos. content	Elastic limit lbs. per sq. in.	Ultimate strength lbs. per sq. in.	Elongation in 8-in. per cent	Reduction of area per cent	Actual elongation in 2-in. per cent
Acid O. H.	0.032	32,320	55,840	28.0	48.1	41.0
Acid O. H.	0.058	32,550	59,410	24.0	43.9	35.0
Acid O H.	0.085	31,840	59,530	29.0	41.1	43.0
Acid O H.	0.115	35,770	63,700	24.0	46.4	35.0
Basic O. H.	0.008	30,900	52,400	29.0	48.5	43.0
Basic O. H.	0.030	31,160	53,440	27.0	49.9	40.0
Basic O. H.	0.052	31,010	55,840	28.0	51.2	41.0
Basic O. H.	0.080	31,840	57,740	26.0	44.9	38.0
Basic O. H.	0.110	33,060	60,970	27.0	41.0	40.0

Abstract of paper presented at the annual meeting of the American Iron and Steel institute, New York, May 31. The author, J. S. Unger, is manager, central research bureau, Carnegie Steel Co., Pittsburgh.

Table IV

Drift Tests and Load Required to Crack Specimens

Kind of steel	Phos. content, per cent	Diam. hole punched away from surface, inches	Load req., pounds	Diameter drilled hole, inches	Load req., pounds	Diam. hole punched towards surface, inches	Load req., pounds
Acid O. H.....	0.032	1.26	28,000	1.65	35,200	1.46	27,600
Acid O. H.....	0.058	1.23	32,700	1.58	31,000	1.39	30,100
Acid O. H.....	0.085	1.26	32,400	1.44	30,800	1.35	30,700
Acid O. H.....	0.115	1.22	33,200	1.40	34,100	1.42	32,000
Basic O. H.....	0.008	1.30	28,400	1.83	32,200	1.45	25,100
Basic O. H.....	0.030	1.26	27,400	2.00	35,900	1.58	27,500
Basic O. H.....	0.052	1.28	28,100	1.65	31,800	1.50	27,500
Basic O. H.....	0.080	1.32	28,600	1.70	33,500	1.47	28,000
Basic O. H.....	0.110	1.30	28,600	1.64	34,300	1.35	29,100

Table V

Results of Shearing and Riveted-Joint Tests

Kind of steel	Phos. content, per cent	Load to double shear ¾ inches diam. rounds, in pounds	Strength of hot-riveted joint, in pounds
Acid O. H.....	0.032	36,985	79,100
Acid O. H.....	0.058	38,830	82,400
Acid O. H.....	0.085	40,165	88,200
Acid O. H.....	0.115	40,080	86,700
Basic O. H.....	0.008	34,845	74,700
Basic O. H.....	0.030	36,180	76,200
Basic O. H.....	0.052	36,475	78,300
Basic O. H.....	0.080	36,340	81,900
Basic O. H.....	0.110	36,220	79,800

Table VI

Results of Bending and Drawing Tests

Kind of steel	Phos. content, per cent	Bending tests, sheets 0.096 in. thick. As rolled Long.	As rolled Trans.	No. bends Normalized at 900° Cent. Long.	Normalized at 900° Cent. Trans.	Erichsen test, sheets 0.048 in. thick. Depth of cup, millimeters
Acid O. H.....	0.032	3	3	4	4	9.22
Acid O. H.....	0.058	4	3	5	4	9.08
Acid O. H.....	0.085	3	3	4	4	9.04
Acid O. H.....	0.115	3	2	4	3	8.71
Basic O. H.....	0.008	4	4	4	4	9.77
Basic O. H.....	0.030	4	3	4	4	9.65
Basic O. H.....	0.052	3	3	4	4	9.35
Basic O. H.....	0.080	3	3	4	3	9.13
Basic O. H.....	0.110	4	3	5	4	9.23

Table VII

Results of Cold-Drawing Experiment

Kind of steel	Phos. content, per cent	Diameter of bar before pickling, inches	Diameter of bar after pickling, inches	Condition of surface after pickling	Diameter of bar after drawing, inches
Acid O. H.....	0.032	1.016	1.011	Smooth	0.933
Acid O. H.....	0.058	1.016	1.007	Smooth	0.933
Acid O. H.....	0.085	1.016	1.006	Rough	0.933
Acid O. H.....	0.115	1.016	1.003	Rough-Seamy	0.933
Basic O. H.....	0.008	1.016	1.013	Smooth	0.933
Basic O. H.....	0.030	1.016	1.011	Smooth	0.933
Basic O. H.....	0.052	1.016	1.009	Moderately smooth	0.933
Basic O. H.....	0.080	1.016	1.006	Rough	0.933
Basic O. H.....	0.110	1.016	1.002	Rough-Seamy	0.933

Table VIII

Tests and Mill Practice on Wire Products

Kind of steel	Phos. content per cent	Wire rod 0.406-in. diameter ult. str. lbs. sq. in.	Elongation wire rod per cent in 10-in.	Wire 0.365-in. diameter ult. str. lbs. sq. in.	Elongation wire per cent in 10-in.	Button-head rivets per cent good heads	Flat-head rivets per cent good heads
Acid O. H..	0.032	51,500	21.2	82,000	*	41.2	6.2
Acid O. H..	0.058	56,500	24.2	83,500	3.8	90.0	0
Acid O. H..	0.085	56,900	23.8	81,000	3.5	14.8	0
Acid O. H..	0.115	63,500	23.7	89,900	*	15.4	0
Basic O. H.	0.008	48,800	26.7	75,600	*	100.0	88.6
Basic O. H.	0.030	50,900	25.0	78,600	4.8	100.0	21.8
Basic O. H.	0.052	54,300	23.8	80,000	5.0	85.7	2.0
Basic O. H.	0.080	54,700	25.0	83,200	4.7	40.7	3.7
Basic O. H.	0.110	58,700	27.2	85,500	4.9	96.6	0
Reg. dead soft O. H. 0.06 Cent.....	.....	39,250	27.5	71,000	6.5	100.0	13.9

*Broke in jaws.

tests were made in duplicate and the average analyses are shown in Table I. With the same phosphorus content, the acid steel shows approximately 3000 pounds higher ultimate than the basic.

The ingots were stripped and charged hot into the soaking pits, heated and rolled in the regular way into billets, slabs and sheet bar. A discard of about 25 per cent was made from the top of each ingot to remove any pipe, sponginess or unsoundness. None of this material was chipped after rolling, and no difference was observed between the different ingots in the rolling mill. These semifinished products were then shipped to the various mills to be rolled into sheets, wire rods and rounds, from which the finished articles were made.

Physical Tests

Longitudinal and transverse tensile, cold bending and drifting tests were made on the sheet bar, which was 0.467-inch thick. Tensile, vibratory and impact tests were made on the untreated and treated 1-inch rounds, and in addition, shearing tests were made on the same material, untreated. Longitudinal and transverse specimens from sheets 0.096-inch thick were tested by alternate bending, and specimens from sheets 0.048-inch thick were tested for their drawing qualities by the Erichsen test. Tensile tests were made on both the wire rod and the wire. The results of these tests are shown in Tables II and VI. On account of the width of the sheet bar, the transverse tests were pulled in 2-inch sections and calculated to 8 inches for comparison.

Longitudinal and transverse bends were made on the same material. All longitudinal bends closed up flat without showing any cracks on the outer surface. The transverse bends were closed until slight cracks could be seen, the bending then being stopped. The bent specimens are shown in Fig. 1.

Drift tests were made on 18-inch pieces from the sheet bar, having three holes 15/16-inch in diameter along the center of specimen, sufficient distance between holes and from ends of piece to avoid disturbing the surrounding metal. The upper hole was punched away from the surface, the center hole was drilled and the lower hole was punched toward the surface. A drift ⅞-inch at the small end and 2¼ inches at the large end and 13 inches long was forced into each hole until cracks appeared at the edge of the hole on the under surface. The load required and the

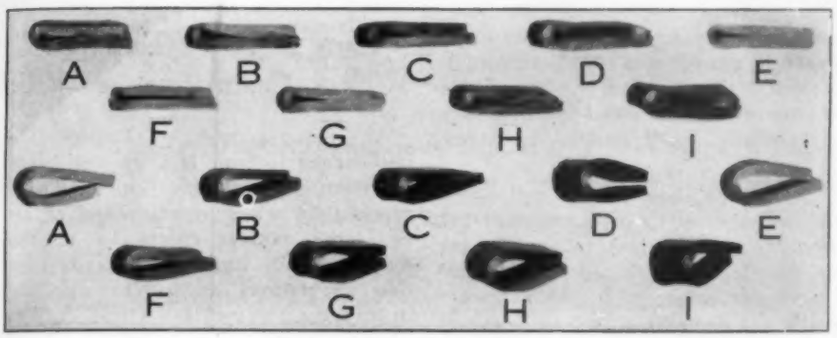


FIG. 1—BEND TESTS OF ACID AND BASIC OPEN HEARTH STEEL
Specimens in upper two rows were bent longitudinally. Those in the lower two rows were bent transversely. The phosphorous content of the specimens is as follows: A, 0.032; B, 0.058; C, 0.085; D, 0.115; E, 0.008; F, 0.030; G, 0.052; H, 0.080; I, 0.110.

diameter of the hole after drifting are given in Table IV.

The vibratory tests were made on specimens ⅜-inch in diameter by 6 inches long. The specimens were gripped 4 inches from one end and vibrated ⅜-inch in each direction at 650 vibrations per minute until failure occurred. The specimens were long enough to make a test at each end.

In the impact tests, a standard S. A. E. specimen, 10 millimeters square, notched 2 millimeters deep and 1 millimeter wide, was tested with a 200 foot-pound pendulum machine, without being able to break the specimen, as they were so tough they would bend over and wedge under the tup. Repeated trials by cutting the notch 5 millimeters deep did not improve matters. The notch was finally cut 6½ millimeters deep and turned away from the tup, when a clean break was obtained. The writer's previous experience with both vibratory and impact tests has led him to place little confidence in either test, and the present tests have not proven an exception.

These tests, particularly the impact tests, were made to try to show that the higher phosphorus steels were brittle under a dynamic or shock test. Nothing seems to be indicated by the conflicting results and nothing is claimed for them, excepting that they have not shown any greater brittleness on the high-phosphorus than on the lower-phosphorus steels.

Shear tests were made on specimens ¾-inch in diameter subjected to double shear in a shearing block, using a shearing blade 1-inch thick. Riveted joints were prepared by riveting up a joint of two bars 5 inches wide and 1¼ inches thick with two 1-inch, hot-driven rivets, spaced 2 inches from centers of rivets and 1½ inches from ends of bars. The results of these tests are given in Table V.

Several rivets 12 inches long from each grade of steel were cold flattened to ¼-inch thick, as shown in Fig. 2, no cracks developing on the flattened edges. Additional rivets were gripped under the head in a strong clamp and bent into a rough shape like the letter S, afterwards being closed up tight under the steam hammer, to try to snap the head off or break the rivet by bending under cold impact. No cracks developed on bending. Fig. 2 shows the rivets after testing.

Bending Tests on Sheets

Longitudinal and transverse test pieces were cut from sheets 0.096-inch thick and given a bending test by gripping vertically in a vise and attaching a clamp to the part projecting above the vise jaws, fastening the clamp the thickness of sheet above the jaws; then bending back and forth through an angle of 90 degrees from both sides of the vertical until broken. Each motion through 90 degrees is counted as one bend. Duplicate specimens were tested as rolled and after normalizing at 900 degrees Cent. for five minutes. Drawing tests were made in duplicate on the Erichsen machine on sheets 0.048-inch thick. The results are shown in Table VI.

Duplicate rolled rounds 30 feet long and 1.016 inches diameter were pickled at one time in the same acid solution and then drawn into rounds 0.933-inch in diameter. As the phosphorus content increased the effect of the pickling acid became greater. This is shown in the gradually decreasing diameters and the condition of the surface of the bars before drawing. This was pronounced enough to enable one to tell the phosphorus content by the diameter of the bar after pickling. After drawing, straightening and inspection, every experimental bar was commercially perfect and was applied on current orders. The results are given in Table VII.

Three 4 x 4-inch billets of each grade were rolled into wire rod, then drawn into wire of various sizes and used to make 1-inch ten-jaw barbed roofing nails with 7/16-inch heads; button-head rivets, length 1 inch, diameter of shank ⅜-inch, diameter of head ⅝-inch; flat-head rivets, length ⅝-inch, diameter of shank ⅜-inch, diameter of head ⅞-inch and thickness of head 0.145-inch. In drawing the wire, it was found that the steel was harder to draw and more breaks occurred in drawing as the phosphorus content increased.

In making the roofing nails, it was necessary to regrind the hammers more frequently than on regular dead-soft open-hearth stock, as the wire was harder to head up. Outside of this trouble, all grades were made up into perfect roofing nails. In heading the button-head rivets the results were erratic, due probably to some small difference in the operation. It can be said in a general

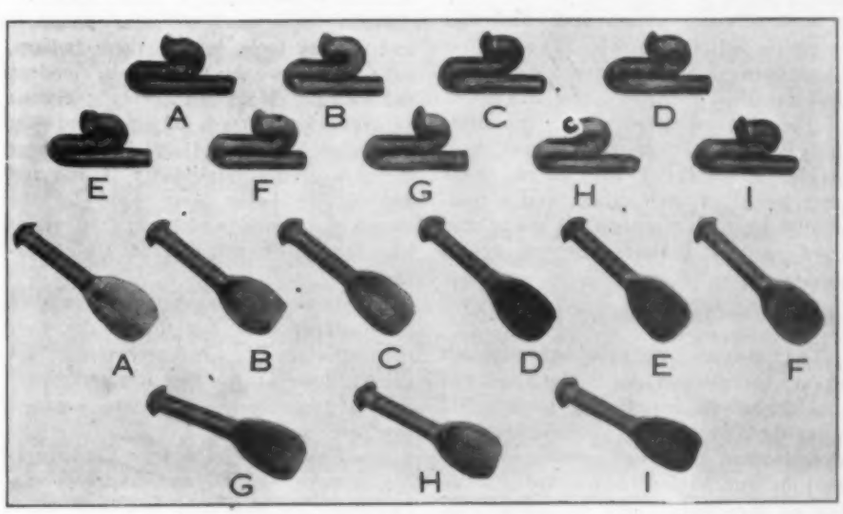


FIG. 2—COLD BEND AND FLATTENING TESTS ON RIVETS
Specimens in upper two rows were bent to try to snap head off. Those in lower two rows were flattened to see if cracks would develop. The phosphorous content of the specimens is as follows: A, 0.032; B, 0.058; C, 0.085; D, 0.115; E, 0.008; F, 0.030; G, 0.052; H, 0.080; I, 0.110.

way only, that the harder the steel, the greater the difficulty in heading the rivet. The flat-head rivet was a severe upsetting operation. It may be called a dynamic upsetting test, and unless the steel is soft, it will not produce a head free from cracks at the edges. The tests on the wire rod and the mill practice on the button-head and flat-head rivets are given in Table VIII on page 1496. For purposes of comparison, a dead-soft basic open-hearth regular steel of about 0.06 per cent carbon was carried along with the experimental steels.

Two sizes of automobile corner panels were made of each grade of steel. For the large size, sheets 35 x 84 inches x 20 gage were used; and for the smaller size, sheets 34 x 48 inches x 20 gage. This operation is severe, and while the results were to some extent erratic, the stiffer or harder steels as a whole gave poorer results than the steels with lower tensile strength, or in other words, the higher phosphorus steels were too hard for the purpose.

Sheets of each grade, 18 gage, were made into cream separator bowls. The process of manufacture consisted of four drawing operations, followed by an annealing and a fifth drawing operation; after which the bowl was hydraulically expanded to shape, edges curled, opening punched for outlet drain, bowls cleaned, pickled and then tinned. The finished bowl is 8 inches deep, 14⅛ inches in diameter at the belly and 12⅜ in diameter at the neck.

The first drawing operation is particularly severe, owing to the size and shape of depression for the outlet drain. Unless the steel is very soft and ductile, it will tear at the deep end of this depression and cause the rejection of the bowl. The higher phosphorus steels were too hard and stiff for this operation, and a number of them failed, particularly the 0.085 and 0.115 per cent phosphorus acid steels. A total of 315 sheets were used, or 35 of each grade, and a total of 194 perfect bowls were made and used in the manufacture of cream separators.

Conclusion

The results of this investigation speak for themselves. None of the steels showed brittleness under cold working, due to the phosphorus. An examination of the results of the various mechanical tests, cold bending of the rivets under a hammer, the severe upsetting in making large headed nails or rivets, or the fabrication of barrels, automobile parts and cream separator bowls indicate nothing more than an increased hardness due to increase in phosphorus. This condition remains the same regardless of whether the force was applied slowly or statically, or if applied by shock or blow.

The results show that in soft steels an increase in phosphorus of 0.01 per cent is equivalent to an increase in tensile strength of about 850 pounds per square inch, which is practically the same as would be obtained by increasing the carbon 0.01 per cent. Hence, higher phosphorus, soft or low-carbon steels can be used for various purposes, provided the carbon content is decreased sufficiently to compensate for the increased hardness due to the phosphorus.

Indians Mined Wyoming Iron Ore

The Sunrise, Wyoming, iron ore mine of the Colorado Fuel & Iron Co., Denver, Colo., was originally discovered by the Indians who operated it as a source of supply for war paint. As the ore they sought was a soft, red oxide of iron, it probably suited the purpose admirably. How long ago the mine was discovered is a question of conjecture, according to the April *Bulletin* of the Colorado company.

Implements discovered in the ancient workings indicate that operations of the aborigines date back to the Stone Age, because stripping and other excavating work has uncovered working places fully 30 feet below the present ground surface. Wash from the surrounding hills has, of course, obliterated all traces of the workings of other days which could not have been disclosed without modern excavating tools and appliances.

Stone implements such as hammers and digging tools, left by these Indians, have been brought to light by modern excavating. Many excellent specimens of arrow heads made of agate and flint have also been found and in the more recent workings, implements of iron and steel. The latter were used by the Sioux, Cheyenne and Arapahoe tribes who inherited the land from their forefathers.

At one time, the property was worked as a copper mine but the results were not satisfactory. In prospecting for copper, however, the fact was established that a large body of bronze hematite iron ore was available.

The Colorado Fuel & Iron Co. secured the property in 1899 and began the development of the iron ore body on a large scale. For many years the mine was worked with steam shovels but at the present time about 75 per cent is obtained by underground mining methods.

How to Mark Express Containers

An announcement of considerable importance to iron and steel shippers has been issued by the Express Tariff association, which is composed of all the large express companies of the United States and Canada, covering new regulations as to the marking of express shipments. These regulations recently became effective, and are designed to eliminate the delay now occasioned by the improper marking of material. It is stated that in the warehouses of New York City alone there are more than 75,000 metal articles which cannot be forwarded due to insufficiently clear marking. The new regulations, as they apply to castings, machine parts, shafting, pipe, rods, bars and other metal articles, follow:

When boxed, barreled, crated or trussed, container must be marked with pen, brush, stencil, waterproof pen, or by label securely attached with glue or equally good adhesive.

When not boxed, barreled, crated or trussed, and there is sufficient smooth surface for the purpose, the address must be plainly marked on the article with durable paint. Such shipments must not be accepted unless marks are thoroughly dry.

When not boxed, barreled, crated or trussed, or when not possible to mark as provided in preceding paragraph, shipments must be marked with not less than two wooden, leather, metal, cloth, rope stock or sulphite fibre-tag-board tags. Rope stock or sulphite fibre-tag-board tags must test not less than 14-point 50-per cent rope, have reinforced metal eyelets and must be attached by wire not less than 23 gage, or strong tarred cord. Tags must be attached wherever possible to unexpected parts of the article in order that they may not become detached in handling.

Rods, shafting, bars, pipe, iron bed slides, automobile springs and other articles of like character marked with tags, as provided in the preceding paragraph, must have the tags securely wired to the article, and in addition, a concealed tag bearing the same address, must be bound to the article with burlap covering, the latter securely wired at each end.

When metal articles are shipped in sacks, the address must be shown on tag conforming to the specifications in paragraph "3", attached either by wire or strong cord, and an additional tag bearing the same address must be enclosed in the sack.

Engineers Grapple War Problems

Spring Meeting American Society of Mechanical Engineers Alive With Important Suggestions and Ideas of Direct War Value—Anti-Efficiency Legislation Denounced—War's Technical Problems Discussed

DAY by day the part played by engineers in the prosecution of the war grows more important. To a large extent this explains the unusually heavy attendance at the spring meeting of the American Society of Mechanical engineers, held at Worcester, Mass., last week from Tuesday, June 4 to Friday, June 7. It was essentially a war meeting. The program was arranged primarily to permit free discussion of war problems and to stimulate action looking to increased effectiveness in the production of necessary war materials. That much-bandied word *nonessential* was scarcely uttered during the 11 sessions. Everyone's mind was focussed on the problems of direct war enterprises. Over 900 members and guests were registered.

Among the speakers were several military authorities, and their viewpoint was admirably summed up by Lieut. Andre Morize, a French veteran, who said: "The man with the rifle and bayonet cannot win the war. It will be won by the technical specialists in and behind the lines who are responsible for the development and maintenance of the huge engines of destruction and complex organization necessary for the success of a modern military campaign. The production, transportation and use of tremendous stores of *material* is the problem of the hour. Men cannot be used to advance against or destroy *material*. It must first be annihilated by superior equipment on the side of the attacking force. The real reason for the recent heavy German advances lies in their development of a method of moving up artillery more efficient than any previously known system, enabling the artillery virtually to keep pace with the infantry."

Down to Work

After the customary addresses of welcome and felicitations at the opening session and reception Tuesday evening, the meeting settled down to work at the first session at Worcester Polytechnic institute on Wednesday morning, June 5. Chas. T. Main, Boston, president of the society, occupied the chair.

Early in the proceedings Alfred D. Flinn, secretary of the engineering council created for war service by the United Engineering Societies, stirred the audience to tremendous applause by citing the effective results secured by the council's subcommittee on industrial affairs in eliminating the anti-efficiency, anti-scientific management riders on the great appropriation bills in congress. A partial victory has already been secured in the case of the naval bill, in which the provisions prohibiting the payment of bonuses or premiums for efficiency have been eliminated, leaving intact, however, the clause forbidding time-studies on government work.

Action Taken

MANY important matters were acted upon at the spring meeting of the American Society of Mechanical Engineers. A proposed amendment to the constitution designed to take the appointment of the nominating committee out of the hands of the president and place it with the voting members was favorably received. It probably will be finally sanctioned at next year's meeting. This amendment marks the culmination of a long agitation to place the control of the society's affairs more directly in the hands of the members. A resolution backing up the engineering council's fight against anti-efficiency riders on congressional appropriation bills was passed unanimously. Assent also was given to a resolution approving the action of the Pennsylvania fuel administrator in forcing coal operators to wash coal at mines before shipment. These resolutions must go before the council of the society for final ratification. The council took steps looking toward the elimination of alien enemies, numbering about 100, from the roster of the society.

Instead of showing a patriotic appreciation of the needs of the day by withdrawing its opposition to scientific management and efficiency in production, Mr. Flinn said the labor lobby in Washington is taking a more reactionary stand than ever. Many congressmen are afraid to take any steps that may be construed as antagonistic to the labor interests, and therefore a hard fight will have to be made to secure the repeal of all the anti-efficiency riders. Mr. Flinn's remarks made such an impression that a resolution introduced by Arthur M. Greene Jr., professor of mechanical engineering, Rensselaer Polytechnic institute, strongly endorsing the action of the engineering council was unanimously passed. The consideration, much less the adoption, of resolutions of this character on the floor of A. S. M. E. meetings is a rare event.

A Message From Belgium

An ovation greeted Prof. O. E. Steels, president of the University of Ghent, Belgium, who spoke on the work of the Belgian commission on industrial rehabilitation of which he is chairman. In perfect English he described the industrial condition of Belgium before the war, sketched the destructive tactics of the Hun and touched on the problems of reconstruction for which the Belgian government is already preparing. Chas. T. Main requested that engineers everywhere co-operate with Dr. Steels by furnishing him with drawings and data covering the layout and construction of industrial establishments of all kinds.

"The Small Industry in a Democracy," an address by Prof. George H. Haynes of Worcester Polytechnic institute, was the feature of the Wednesday morning session. Prof. Haynes approached his subject from the standpoint of an economist trained in the mutual relations of business and government. When our young soldiers return from the front with broadened vision and a keen appreciation of their own powers the demand for more democracy in industry will become overwhelming, Prof. Haynes pointed out. On that day we must be ready to march with the times, nevertheless avoiding the pitfalls and chaos of Bolshevism. The small industry, naturally more democratic than the large one, may in such an event become the bulwark of the nation. Prof. Haynes' address will be published in a later issue of THE IRON TRADE REVIEW.

At the conclusion of the Wednesday morning session warm tributes to the memory of the late Frederick R. Hutton, honorary secretary of the society, were paid by Worcester R. Warner, Warner & Swasey Co., Cleveland, and William Kent, consulting engineer, Montclair, N. J.

Continuing the discussion of war problems Wednesday afternoon with Chas. T. Plunkett, vice president of the society, and president of the Berkshire Cotton Mfg. Co., Adams, Mass.,

in the chair, J. E. Rousmaniere, New York, made an address on "The Textile Industry in Relation to the War," illustrated by numerous samples of war textiles.

Mr. Rousmaniere was followed by John S. Holbrook, Gorham Mfg. Co., Providence, R. I., who spoke on "Converting a Factory for Munitions Work." In normal times the Gorham company specializes on the manufacture of high grade silverware. Within the past three years the works has been greatly enlarged and transformed almost entirely into a munitions factory, working mainly on cartridge cases and other brass ordnance specialties. The plant is now equipped to make 10,000 75-millimeter cartridge cases per day, to machine, assemble and load 100,000 hand grenades per day, together with 15,000 Newton-Stokes trench mortar shells per day and innumerable other products. The transformation has been accomplished, Mr. Holbrook pointed out, largely by building new plants, equipped with new machinery and by training new forces of employes, many of whom are women. The grenade plant, for instance, was placed in operation in 45 days after the ground was broken for the building foundations.

Describes New Process

George I. Rockwood, president, Rockwood Sprinkler Co., Worcester, Mass., discussed Mr. Holbrook's paper and described experiments leading to the invention of a method of drawing a reverse taper on booster or detonator cases for shrapnel and high explosive shells. These cases are 3 inches long and 0.9-inch in diameter, with a screw thread on one end. Unlike a cartridge case which is thick at the base and thin at the lip, with a natural taper from the standpoint of the draw-press expert, the booster cases are thickest at the lip, which carries the thread and thin at the base, or cupped end. The French have never succeeded in drawing these cases successfully, and today they draw them with parallel sides and turn down the outside to obtain the requisite taper. By the invention of the Rockwood Sprinkler Co. reverse taper cases are drawn smoothly and accurately in an ordinary press. This is accomplished by using a punch too small for the die. At the end of the first operation the taper is irregular the metal being bunched in five places corresponding to the first five drafts. A straight taper is produced by finishing with a punch itself provided with a reverse taper, that is, larger in diameter at the lower than at the upper end. It was found necessary to use talcum powder in addition to the usual tallow for lubricating the dies.

At the general war session Wednesday evening, C. E. Parsons, paymaster, United States navy, described the purchasing methods of the navy department, emphasizing that it is the desire of the department to deal with manufacturers on a co-operative basis instead of antagonisticly. "We realize," he said, "that the navy is the servant of the people and we believe the best results can be secured by taking manufacturers into our confidence. We give particular attention to the routine of our purchasing system to the end that manufacturers may be paid promptly. We believe in doing business on a business basis, and I am glad to say that at present the average time for the payment of our accounts, after goods are accepted and bills rendered, is seven days."

A Silversmith's Bit

A GLIMPSE of the tremendous war preparations of the United States and its allies, as well as a pointed lesson for manufacturers of nonessentials, was contained in an address by John S. Holbrook of the Gorham Mfg. Co. In the fine tableware and jewelry trade the Gorham company's name stands high among producers of expensive and artistic luxuries. In the munitions field it is rapidly assuming an equal prominence. Today this firm of silversmiths is making 10,000 75-millimeter cartridge cases every 10 hours, together with a daily production of 100,000 loaded hand grenades, 2500 naval 4-inch cartridge cases, 15,000 Newton-Stokes trench mortar shells and innumerable small-arms cartridge cases. Since March 1, 1917 the company has made or has on order, 6,600,000 brass and gilding-metal light arms cups; 275,000,000 brass and cupro-nickel cups (for Italy); 600,000 U. S. navy landing-gun casings; 3,875,000 75-millimeter American type cartridge cases; 600,000 4-inch naval gun cartridge cases; 9,000,000 hand grenades; 750,000 trench-mortar bombs; 1500 75-millimeter gun sleeves and 5000 airplane bombing sights. Numerous naval gun plotting boards and fine nautical instruments also are manufactured. To accomplish these results the Gorham Mfg. Co. has invested millions of additional capital and greatly enlarged its plant facilities at the same time applying the peculiar skill of its highly trained metal and jewelry workers to direct war production.

Again at Thursday's sessions, war problems occupied the center of the stage. Special interest was manifested in the session on emergency technical war training held at Worcester Polytechnic institute Thursday morning. Dean Chas. H. Benjamin, Purdue university, Layfayette, Ind., presided. The remarks of Lieut. Andre Morize of the French army already have been quoted in part. Lieut. Morize was preceeded by Maj. James E. Cassidy, U. S. R., engineer corps, who emphasized the necessity for the emergency technical training of tens of thousands of men for service in the army and in war industries. He cited lack of trained men as one of the reasons for the slow development of airplane production. He said there is room for men of all degrees of technical experience. Entirely new instruments of warfare must be developed and manufactured in huge quantities, he declared, adding that right now there is a crying need for a lighter and more mobile field gun of about 2¾-inch calibre. Tank construction also is pressing.

Urges Complete Training

Arthur L. Williston, principal of Wentworth institute, Boston, and educational director for New England, committee on education and special training, war department, urged that on account of the shortage of shipping, men be trained as completely as possible in this country, so they may go immediately into active service upon arriving in France. Mr. Williston said that 90,000 men are now being given special technical war training in American colleges and that 40,000 more soon will be added.

Through the courtesy of Maj. Frank B. Gilbreth, now at Fort Sill, Okla., moving pictures of the construction and operation of the heavy Browning machine gun were shown. In a preliminary announcement by Mrs. Gilbreth, who has been closely associated with her husband in the development of motion pictures for technical and industrial training, it was stated that the general staff is now engaged in making a large series of films which will show the methods of making and using practically all kinds of ordnance material.

Closely related to the problem of stimulating direct war production was the special fuel session Thursday morning at which Prof. L. P. Breckenridge, Sheffield Scientific school, Yale university, New Haven, Conn., presided. The proceedings were opened by a paper on the fuel problem in the middle west by A. A. Potter, University of Kansas. This was followed by a topical discussion on fuel economy, at which over 60 written discussions were submitted. The necessity for increased coal production, and for economy in consumption through improvements in boiler efficiency and in the transmission and use of power, was given special stress. These discussion

will be summarized in a later issue of THE IRON TRADE REVIEW. A resolution was adopted approving of the stand of the fuel administrator of Pennsylvania in insisting on having coal washed before shipment. It is pointed out in the resolution that great waste both in railway facilities and boiler capacity results from shipping unwashed coal containing large amounts of noncombustible matter.

At the general session Wednesday afternoon at which Prof. Arthur M. Greene Jr., Rensselaer Polytechnic institute, Troy, N. Y., presided, a paper by Prof. William W. Bird, Worcester Polytechnic institute, on "A Foundry Cost and Accounting System," was rather severely criticized. Written discussions were presented by Benjamin D. Fuller, superintendent, Cleveland plant, Westinghouse Electric & Mfg. Co. and president, American Foundrymen's association; Robert E. Newcomb, superintendent, Deane works, Worthington Pump & Machinery Corp., Holyoke, Mass.; Robert S. Dunham and J. M. J. House. It was pointed out that while what Professor Bird had written might be applicable to a small foundry, it would hardly do in larger organizations. Dr. Richard Moldenke, Watchung, N. J., and William Kent, consulting engineer, Montclair, N. J., also contributed to the discussion.

Following Professor Bird's paper and its discussion was one by Morris L. Cooke, engineer, Philadelphia, on engineering ethics. This paper in brief contains a demand for a new code of ethics for the mechanical engineering profession, with special regard to the public interest. Mr. Cooke declared that while the first consideration of the engineer should be the interests of his employer or client, there are other interests no less important and he said engineers should take the same attitude toward the public as the medical profession. The discussion of the paper was almost unanimously in favor of the desire expressed by Mr. Cooke for a code that would obviate the unethical and questionable. Discussions were presented by Robert J. Hearne, secretary-treasurer, Durbrow & Hearne Mfg. Co., 12 Wooster street, New York City; Oberlin Smith, past president A. S. M. E., and president, Ferracute Machine Co., Bridgeton, N. J.; Thomas M. Roberts, bureau of yards and docks, Washington, D. C.; Augustus F. Nichols; Fred J. Miller, formerly general factory manager, Remington Typewriter Co. and now in the army; Richard A. Feiss, general manager, Joseph & Feiss Mfg. Co., Cleveland; Charles M. Horton, Hadley, N. Y.; C. Wellington Coiner; and John B. Mayo, engineer, Electric Boat Co., Groton, Conn.

The attention of the meeting was directed by Secretary Rice to the fact that Isham Randolph is now engaged on a code of ethics for the American Society of Civil Engineers, and it was voted that the secretary of the A. S. M. E. write Mr. Randolph of what the latter society proposes in the way of raising its ethical standards.

During the three days' professional sessions a large number of purely technical papers were read. In most cases the discussions were limited. Several of these papers have been published in recent issues of THE IRON TRADE REVIEW, including the following: "Efficiency of Gear Drives," by C. M. Allen and F. W. Roys; "Stresses in Machines When Starting or Stopping," by F. Hymans; and "A High Speed Air and Gas Washer," by Lieut. John L. Alden.

Reports were presented by the committees on screw thread tolerances, steel roller chains and weights and measures. The latter embodied a summary of the questionnaire of the American Institute of Weights and Measures on the use of the metric system in export trade. This feature of the report, which upheld the existing English system, was vigorously attacked, chiefly by C. A. Briggs, associate physicist, bureau of standards, Washington. Dr. Briggs questioned the fairness of the report.

The Worcester local committee supplied a delightful entertainment program. Numerous plant inspections were scheduled. Luncheon was served at Worcester Polytechnic institute on Wednesday and at the plant of the Norton Co. on Thursday. Dinners were given Wednesday evening at the Bancroft hotel and Thursday at the Worcester Country club. The latter function was followed by a lawn party. Special excursions were provided for the ladies during the meeting. Friday was devoted to an all day automobile trip through eastern Massachusetts, including Camp Devens and the Wayside inn.

Speakers Bring War Near

On June 12, at the Allyn house, Hartford, Conn., the regular monthly meeting of the New England Foundrymen's association was held. At 3:15 p. m., after a buffet luncheon was served at the Allyn house, automobiles took those in attendance on a tour about the city and returned for the dinner which was served at 6:30 p. m. The war was the theme of both speakers of the evening, Lieut. J. W. Norsworthy, of the 73rd Royal Highlanders, the famous "black watch" Canadian regiment, and Sergeant Nelson Byrne of the 20th Royal Huzzars of England. They related a number of interesting anecdotes with the recital of their experiences while in the service.

25,000,000 Tons

Of Merchant Ships Are Predicted By Chairman Hurley By 1920

After an expenditure of $5,000,000,000, required to finish the shipping program for 1918, 1919 and 1920, America will have a merchant fleet aggregating 25,000,000 tons. This is one of the outstanding features of an address delivered by Chairman E. N. Hurley of the United States shipping board at South Bend, Ind., June 10, where he addressed the graduating class of Notre Dame university. "Our program," he said, "calls for the building of 1856 passenger, cargo, refrigerator ships and tankers, ranging from 5000 to 12,000 tons each, with an aggregate deadweight tonnage of 13,000,000. We are also contracting for 200 wooden and 50 concrete barges, 100 concrete oil-carrying barges and 150 steel, wood and concrete tugs of 1000 horsepower for ocean and harbor service which aggregate a total deadweight tonnage of 850,000. Exclusive of these, we have 245 commandeered vessels, taken over from foreign and domestic owners which are being completed by the Emergency Fleet corporation. These average 7000 tons each, which means a total deadweight tonnage of 1,715,000. This means a total of 2101 vessels exclusive of tugs and barges which are being built and will be put on the seas by the Emergency Fleet corporation in carrying out its present program, with an aggregate deadweight tonnage of 14,715,000."

Chairman Hurley give the workmen due credit for their part in what has been accomplished. He said: "American workmen have made the expansion of recent months possible and they will make possible the successful conclusion of the entire program. On July 1, 1917, there were less than 45,000 men engaged in shipbuilding yards. Today, a force of 300,000 men is employed and 250,000 men are engaged in allied trades and this force will be continuously increased. From present indications the probabilities are that by 1920, nearly 1,000,000 men will be at work."

While in 1919 the output will exceed 3,000,000 deadweight tons, Mr. Hurley said, 1919's output with the new yard capacity would exceed 13,500,000 deadweight tons, with the new capacity. This will be more than Great Britain, heretofore the greatest builder of ships, has completed in any five years of her history. "We have 819 shipways in the United States," said Mr. Hurley, "and of these, a total of 751, all but 90 of which are completed, are being utilized by the Emergency Fleet corporation to build American ships."

West Still Speeding Up Ship Work

Skinner & Eddy Corp. Increases Capacity to Accommodate New Government Orders —Additional Shipyards Near Completion in Northwest—General Industry Stimulated to High Degree by Demands of Vessel Construction

(Staff Correspondence)

SEATTLE, Wash., June 8.—Industry in the Pacific northwest is being frequently accelerated by movements tending to speed up the production of ships. The most noteworthy event of this nature took place at Seattle recently when a contract for additional steel ships said to approximate $100,000,000 was awarded to the Skinner & Eddy Corp., bringing the total shipbuilding contracts in this city alone up to $250,000,000. This yard is leading the country in the delivery of ships and also all yards in the driving of rivets. The closing of this contract by the Emergency Fleet corporation follows the consummation of two important events which have a direct bearing on it. The Emergency Fleet corporation some days ago purchased the plant of the Seattle Construction & Dry Dock Co., the latter retaining its ship repair plant which it will move to another site. Following this the Skinner & Eddy Corp. leased the yard of the Seattle Construction & Dry Dock Co., and these two plants will be utilized in handling the $100,000,000 order just placed. The two yards adjoin each other and have a combined area of 55 acres. Both have been working at top speed to turn out steel vessels for the government and have payrolls approximating 6000 respectively.

Ship Contracts Numerous

This with other orders placed recently throughout the territory mean the stabilization of industry and the steady employment of large numbers of men for considerable time to come. The Standifer yards at Vancouver, Wash., at which ten 9500-ton steel ships will be constructed are well on the way to completion. The Northwest Steel Co., Portland, a short time ago was awarded a contract for eight 8800-ton steel ships and the Columbia River Shipbuilding Co., at that place, has large orders of a similar nature. The Albina Engine & Macine Works in that city also is very active. The Foundation Co., at Tacoma, Wash., is extending its yards for steel ship construction. A short time ago J. F. Duthie & Co., Seattle, were awarded a contract for ten 8800 ton steel vessels for the Emergency Fleet corporation. While the shipyards of J. Coughlan & Sons, at Vancouver, B. C., which have an extensive contract for constructing steel ships for the British government were put out of commission for the time being and suffered a loss of $1,500,000 to $2,000,000 by fire, they are to be reconstructed at once and the work of turning out ships is to be speeded up. The West Coast Shipbuilding Co., Everett, Wash., which proposes to construct concrete ships is making progress with its plans and contemplates having extensive work under way in a short time for private interests. A number of 7500-ton cargo vessels, barges and ocean-going tugs are included in the list. I. W. Hubbard, engineer division of shipyards and plants of the Emergency Fleet corporation is visiting various points in the northwest looking into the possibility of concrete shipbuilding plants in the section.

Another thing which makes for stability is the fact that the shipping board is pursuing a liberal policy in the matter of wooden ships and has decided to award contracts for 200 additional vessels of this kind. It is expected that fully half of this lot will be directed to Washington and Oregon yards. The northwest has many of these yards, all of which are turning out ships in the speediest manner possible. The materials are near at hand and climatic conditions are such that work can be carried on at all seasons. This is also destined to have a good effect on the lumbering industry, one of the chief assets of the Pacific northwest.

This activity is having the effect of causing an upward trend to those industries which have to do with supplying materials for ship construction. Many new concerns are being formed locally and others from the east are establishing offices or branches in the field. The Liberty Steel Products Co., of New York, has established offices at Seattle. Vice President A. H. Dillon, of this company, states that the local demands for steel products, ship, railroad and mill supplies is such that the opening of offices to handle the volume of business was imperative.

In the matter of the proposed $25,000,000 steel plant to be erected on Puget sound by B. L. Thane, manager of the Alaska-Gastineau Mining Co., of Juneau and others, the latter announced, when in Seattle recently, on his way to New York, that plans for the new plant are materializing satisfactorily. He said announcement of details and time of beginning construction may be expected within the next 30 days.

To Make Steel Castings

Denoting the growth of industry and increasing demand for foundry products, is the announcement of the Everett Steel Co., Everett, Wash., headed by T. B. Sumner, of the Sumner Iron Works in that city, for the purpose of making steel castings. A building, 70 x 100 feet, is to be erected. The Liberty Foundry, Inc., has been organized at Portland by William Cornfoot and others with a capital of $50,000 and building for plant has been leased. The American Foundry Co. has been organized at Seattle by Sumner K. Prescott, E. L. Prescott and others with offices at 408 Occidental avenue. A site 150 x 180 feet has been leased and a 15-ton gray iron foundry will be installed. Much of the equipment has been ordered from the Whiting Foundry & Equipment Co., and the balance will be procured locally. Frank Waterhouse & Co., shippers, of Seattle, have purchased the plant of the Vulcan Mfg. Co., in that city, which engaged in the manufacture of structural steel, iron and steel castings, engine parts, cylinder heads and other appliances for the shipyards. Considerable sums of money will be spent in making additions to the plant's equipment. The blast furnace of the Washington Steel & Iron Co., at Sedro Woolley, Wash., has been completed and operations started. It has a capacity of 60 tons per day. Extensive orders for Scotch marine boilers are being filled by the Willamette Iron & Steel Works, at Portland. The Wright Steel Foundry Co. has been incorporated at Seattle by E. E. Hinsdale, Charles Stewart and Ruby E. Wright, with a capital stock of $100,000. E. E. Hinsdale, who has been secretary of the Aurora foundry in Seattle, has sev-

ered his connection with that concern and has become secretary and treasurer of the new company. Option has been taken on a site and it is expected that work will be started in the near future on construction of a 70 x 100-foot steel foundry. The initial installation will be a 3 or 5-ton electric furnace with a 15-ton daily output.

One of the larger companies coming into the field which will manufacture extensively for shipping interests is the Gulowsen-Grei Engine Co., incorporated for $560,000 and which has started construction of a plant on Salmon bay at Seattle to cost $400,000. Large foundry building warehouses and assembly building will be erected. The engine to be made is a crude oil internal-combustion engine suitable for use in the larger ships turned out on Puget sound.

Small Bars Active

While there is some difficulty on the point of obtaining licenses for export, there has been considerable activity at Seattle in steel bars of certain sizes for export. Where a mill can roll bars of a certain size it is assumed that the plant will be utilized for rolling shell rounds. There has been no difficulty in securing licenses for bars under 2½ inches. These bars are in the main for shipment to Japan and considerable tonnage has been moving at 3.95c, Seattle. There has been a fair demand for light rails for export especially 12 pounds and it has been hard to obtain them for quick delivery. Some 20-pound rails also have been sold. One order recently placed was for 250 tons at $70, mill. These were for Japan. The freight to Seattle was 45 cents per 100 pounds. Export licenses for rails to date have been very easy to obtain.

One Seattle concern reports sale of 1000 tons of structural material for export during April at 5c, Pittsburgh, plus the freight of 45 cents per 100 pounds. In boiler plates there was little activity, the price being considered prohibitive for the local consumer, if he does not have government work on hand.

No. 1 pig iron is quoted at $50, Seattle, and very hard to get, practically all of the furnaces having withdrawn their quotations. There is a limited amount of No. 3 at $48. Delivery of pig iron is one of the problems in the Puget sound section, deliveries being about 40 per cent short. The situation is not as serious however as might have been because heavy shipments were received by the foundries in March. The future, however, is causing uneasiness. Labor shortage in the east and the demands of numerous new foundries starting in the northwest tend to aggravate the situation. Another reason for the shortage is the fact that 1000 tons were purchased for the first half from the Rome, Ga., furnace, but this stack was banked for three months due to shortage of coke. This furnace is to start up again in about three weeks.

Difficulty is still being experienced in securing coke from the east. The government is very strict about loading the cars to capacity. The fact that the local supply of fuel has so greatly improved in quality that the foundries could with one or two exceptions, get along without eastern coke is of great importance to consumers. There is an ample supply of the local product. It is only in case of one or two of the foundries that run unusually large heats where eastern coke is found absolutely essential.

Cast iron pipe remains the same as it has been for some time, $64 a ton at Seattle, which includes $19 freight. There is a heavy demand for brass and copper tubes from all the shipyards. As the output of brass and copper tube shops has been practically taken over by the government, very few quotations are being made for outside work at the price of 37 cents per pound. An attempt is being made to take care of some regular customers outside of the government.

During the past month there has been no material change in the price of steel scrap at Seattle. The prevailing price is $27.50. Some sales have been made at $30 recorded and $25 is the figure at which some has been under contract for considerable time.

A month ago prices of steel castings ranged from 10 to 45 cents per pound depending on the nature of the casting. Recently prices have become somewhat unsettled and are running slightly above these figures. The application of the government prices to local conditions has not been fully worked out as yet. On account of increased freight rates and rising cost of labor, Pacific coast foundrymen are finding it rather difficut to meet the government prices. The situation with iron foundries is also uncertain in some respects, owing to the fluctuations of the scrap market. As high as $37 is being paid for cast scrap. Some sellers are asking as high as $40, and the threat is still being made to take the scrap to Portland and San Francisco. There is a slight upward trend in the price of iron castings over that of 7 to 8 cents prevailing a month ago which can be attributed to increase in wages and in general costs.

A shortage of common labor and helpers is reported at Seattle. The city is paying $4 for common labor, the rate prevailing in the yards and shops. The city's payroll is rather extensive and many are being attracted to it. Aside from this, new factories and foundries are being added, making further demands on man power. The situation is steadily growing more acute.

Reduced Prices

In Magnesite Brick Caused by Increased Supply—Other Grades Unchanged

Pittsburgh, June 11.—Increased supplies are responsible for the reduction in the price of magnesite brick, which now is quoted at $110 to $130 per 1000, f. o. b. works, for 9x4½x2½-inch size, depending upon the quantities involved. Some transactions at these prices have taken place during the past week in this district. Inquiry for this grade is only fairly active. First quality fire clay brick still is in strong demand for blast, open hearth and heating furnaces and soaking pits. Producers say they are able to take care of requirements, the production being about on an even keel with inquiries and satisfactory deliveries are being made. Prices remain unchanged, Pennsylvania first quality being quoted at $45 to $55 per 1000, f. o. b. works. Fair demand also exists for second quality fire brick.

Refractories

(Per 1000 f. o. b. works)

FIRE CLAY BRICK.

(First Quality)

Pennsylvania	$45.00 to 55.00
Missouri-Illinois	55.00 to 65.00
Ohio	45.00 to 50.00
Kentucky	45.00 to 55.00
New England	55.00 to 65.00

FIRE CLAY BRICK

(Second Quality)

Pennsylvania	$40.00 to 50.00
Ohio	35.00
New England	48.00 to 58.00

SILICA BRICK.

Pennsylvania	$50.00 to 60.00
Chicago	55.50 to 65.50
Birmingham	45.00 to 55.00

MAGNESITE BRICK

(Per Net Ton)

9 x 4½ x 2½	$110.00 to 130.00

CHROME BRICK

(Per Net Ton)

9 x 4½ x 2½	$135.00 to 140.00

BAUXITE BRICK

(Per Net Ton)

55 per cent.	$40.00 base
76 per cent.	100.00 base

Steel Exports Show Better Shipping

April Tonnage Considerably Over February and March—Semifinished Shipments Are Running Heavy—Scrap Exports Completely Disappear Reflecting Domestic Shortage—General Iron and Steel Imports Are Negligible

RECENT improvement in shipping facilities is reflected in the report of iron and steel exports for the month of April, which has just been issued by the bureau of foreign and domestic commerce. In that month, with a total of 177,128 tons, a gain of 32,685 tons compared with the March, 1918, total of 144,443 tons, and 16,163 tons more than the April, 1917, total of 160,695 tons. Sheet and plate exports amounted to 61,508 tons, compared with 51,503 tons in March, and 69,258 tons in April a year ago. Steel bar exports also increased from 48,135 tons in March, to 60,477 tons in April. Pig iron shows a slight increase over March, but is only about one-fourth of the figure for the corresponding month of last year. Other products showing an increase in April, compared with March, are wire rods, steel rails and barbed wire.

A remarkable feature of the April report is that not a ton of scrap was exported from the United States during that month. For some time past, scrap exports have been rapidly falling off, so that the total for the 10-month period ending April, 1918, amounted to only 21,826 tons, or a little more than one-tenth of the total of 216,727 tons for a similar period in 1917. In March these shipments amounted to only 307 tons, but in April, 1917, the tonnage was 13,166. This decrease in scrap exports can no doubt be attributed to the fact the domestic supply of this material is short and during the past few months a very small quantity has been imported. In April only 3499 tons of scrap were shipped into the United States, compared with a total of 34,681 tons for April, 1917.

The tonnage of all iron and steel imports for the month of April was so small as to be almost negligible. A comparison of the April total of 11,371 tons with the March figure of 14,345 tons does not indicate the rapid decline which has taken place in imports of iron and steel products. The figures for the 10-month period, however, give a total for 1917 of only 173,510 tons, which is about half the total of 345,833 tons for a similar period in 1918. All of the important products show a loss in April, compared with March.

Following the improvement in March, April iron ore imports again show a substantial increase. In that month, 75,114 tons of iron ore were received in the United States, which is well over the April, 1917, figure of 58,878 tons, and also exceeds the total for March, 1918, of 65,372 tons. Almost the entire tonnage, or 63,950 tons, were received from Cuba.

IMPORTS AND EXPORTS, GROSS TONS

1915	Imports	Exports
July	20,858	380,340
August	27,556	405,949
September	23,345	382,113
October	34,318	349,843
November	37,131	362,764
December	35,408	353,853
1916		
January	15,824	360,102
February	20,279	368,980
March	15,159	438,649
April	20,176	384,452
May	32,114	538,657
June	26,885	515,214
July	14,774	502,330
August	23,255	571,401
September	25,559	643,762
October	30,169	588,892
November	42,545	554,219
December	44,134	580,988
1917		
January	40,910	608,281
February	24,947	449,099
March	37,943	606,559
April	48,213	519,397
May	26,013	588,514
June	28,419	614,600
July	28,859	357,776
August	22,635	519,518
September	20,196	482,311
October	14,225	557,138
November	13,995	473,549
December	13,769	654,867
1918		
January	12,875	495,057
February	12,941	438,848
March	14,345	379,924
April	11,371	462,887

462,887 tons of iron and steel products were shipped from this country. While the total is somewhat below the average of the past 12 months, being 54,896 tons less than the figure for April, 1917, it shows an increase of 82,963 tons compared with March shipments of 379,924 tons, and is 24,039 tons greater than the February total of 438,848 tons. The increased tonnage is covered entirely by such commodities as are being used by our allies in prosecuting the war.

IRON AND STEEL IMPORTS

	April		Ten months ending April	
	1918	1917	1918	1917
Pig iron	3,125	8,771	45,173	107,445
Scrap	3,499	34,681	59,073	191,864
Bar iron	22	60	2,321	4,208
Ingots, blooms and billets	2,772	3,930	39,735	19,431
Structural shapes	157	63	6,879	793
Rails	374	577	7,985	11,606
Sheets and plates	44	97	1,961	1,482
Tin and terne plate		34	32	608
Tin scrap	792	348	6,887	6,333
Wire rods	586		3,464	2,063
Total	11,371	48,561	173,510	345,833

IRON AND STEEL EXPORTS, GROSS TONS

	April		Ten months ending April	
	1918	1917	1918	1917
Scrap		13,166	21,826	216,727
Pig iron	11,282	44,783	331,378	690,412
Steel billets, ingots and blooms	177,128	160,965	1,678,620	1,575,961
Wire rods	18,952	11,834	168,031	114,463
Steel rails	39,463	36,061	353,450	510,727
Steel bars	60,477	73,227	530,142	635,186
Iron bars	3,273	3,467	41,877	50,843
Struc. iron and steel	18,169	26,434	203,389	285,210
Hoops, bands and scroll	4,499	3,471	51,101	35,808
Sheets and plates	61,508	69,258	640,426	511,362
Tin and terne plate	24,235	19,958	183,467	184,226
Barbed wire	12,509	13,798	143,442	277,322
All other wire	12,219	16,453	146,382	200,572
Cut nails	678	318	4,204	3,878
Wire nails	6,074	6,999	97,182	194,722
All other nails incl. tacks	556	1,810	11,259	15,221
Pipes and fittings	9,120	11,931	151,474	202,878
R. R. spikes	471	813	12,526	15,501
Bolts, nuts, rivets and washers	1,868	2,119	25,612	24,529
Horseshoes	252	460	8,357	3,704
Cast radiators	154	458	2,492	3,225
Total	462,887	517,783	4,812,637	5,662,477

EXPORTS, GROSS TONS

1916	Pig iron	Semi-finished material
Jan.	19,319	55,315
Feb.	15,061	87,406
Mar.	19,439	107,674
Apr.	18,518	88,764
May	28,293	142,782
June	48,770	116,316
July	28,718	135,827
Aug.	60,264	160,921
Sep.	64,122	163,104
Oct.	92,756	162,669
Nov.	106,781	120,883
Dec.	105,195	162,901
1917		
Jan.	69,146	183,656
Feb.	49,018	131,566
Mar.	69,629	193,469
Apr.	44,783	162,209
May	61,112	168,158
June	81,999	192,133
July	32,368	112,085
Aug.	62,083	189,083
Sep.	44,287	148,932
Oct.	47,200	204,724
Nov.	25,733	150,120
Dec.	66,573	204,555
1918		
Jan.	20,581	195,385
Feb.	10,540	173,272
Mar.	9,849	144,443
Apr.	11,282	177,128

IRON ORE IMPORTS, GROSS TONS

	April		Ten months ending April	
	1918	1917	1918	1917
Spain	24,943		26,093	199,582
Sweden	1,022		17,718	128,358
Canada	1,164	128	160,203	88,999
Cuba	73,950	31,625	498,107	551,545
Oth. countries		1,160	1,634	60,994
Total	75,114	58,878	703,755	1,029,478

Shipments of steel ingots, billets and blooms increased appreciably in April,

Tools Will Win The War

—HENRY FORD

DETROIT, Mich., June 10.—This war is the greatest engineering feat the world has ever known and tool power will win it, in the opinion of Henry Ford. He says:

"The United States produces half the steel and coal of the world. Converted into machinery of warfare this would be decisive on the west front.

"Russia, with man-power of 185,000,000, was almost entirely lacking in machine-power. She mobilized 15,000,000 men, but she sent them into battle poorly equipped, armed with obsolete rifles, small-caliber guns, and in many cases only with clubs. This poorly equipped and poorly armed army was pitted against the vastly superior rifles, machine guns, and large-caliber cannon which were turned out in vast quantities by great factories and a highly organized railroad system in Germany.

"Russia lost 5,000,000 men and her power collapsed.

"The lesson for us is that not numbers nor latent resources, but better machinery and better organization are decisive in warfare.

Machines to Wreck Trenches

"Trenches can be conquered and the stalemate of the west front broken if we develop and use the right machinery. For a long time in the Middle Ages castles were impregnable when men attacked them with spears and catapults, but they fell easily to the new tools using gunpowder. To me it seems out of place to send men with bare bodies and rifles against trenches of concrete fortified with barbed wire, machine guns, and cannon.

"A small tank can be made for attack that will carry two men and a machine gun with armor protection strong enough to resist the hail of machine-gun bullets and shrapnel splinters. Such tanks, if standardized to one model, could be made in three months. Distributed equally along the west front, this would place one tank every 18 feet. In each tank two men shielded by armor-plate with a machine gun would have the offensive power of 50 soldiers with rifles. That advantage would come from possession of the better piece of fighting machinery. Soldiers would stand in line to have a chance to attack in such outfits.

"In our food problems also we have failed to realize that the solution lies in the increase of tool-power on the land. The farms of England, France and America have been drained of their men, first to fill the armies, then to fill the munition factories, so that today food production lags. For three decades men have been leaving the farm to get to the easier work of the factories and on railroads where engine power has removed the drudgery of heavy muscular labor. The curse of Adam to "labor in the sweat of the brow" still rests upon farm workers. It remains for America to carry engine power to agriculture. Until 1850 harvesting and threshing were done by human muscles using sickle, scythe and flail. Then America invented the binder and harvesting machine and shifted these two tasks to the animal. Today America must substitute engine power for human and animal muscles on all kinds of farm work."

Light Army Trucks Placed

The motor transport service is placing orders for 8000 motor trucks designated as Class B Standard for army service. These trucks which will have a capacity of from 3 to 5 tons will be assembled, only, working parts having previously been ordered. Sixteen companies are expected to share this order, 15 having already contracted for a number of the trucks. The latter are: Gramm-Bernstein Motor Truck Co., Lima, O.; Kelly-Springfield Motor Truck Co., Springfield, O.; Indiana Truck Corp., Marion, Ind.; Service Motor Truck Co., Wabash, Ind.; Republic Motor Truck Co., Alma, Mich.; Selden Truck Co., Rochester, N. Y.; Bethlehem Motor Corp., Allentown, Pa.; Diamond T. Motor Co., Chicago; United States Motor Truck Co., Cincinnati; Brockway Motor Truck Co., Cortland, N. Y.; Healy Motor Corp., Moline Ill.; Sterling Motor Truck Co., Milwaukee; Garford Motor Truck Co., Lima, O.; Packard Motor Truck Co., Detroit; and Hurlbert Motor Truck Co., New York. The contract price for assembling will be $567 per truck, and delivery is to be made betwen Aug. 1 and Dec. 1.

Engineers Expel Aliens

By resolution the board of directors of the American Institute of Mining Engineers, at a recent meeting in New York City, dropped from the roll the names of all enemy aliens living in enemy countries. Enemy alien members of the organization outside of enemy territory will be called upon to explain their attitude toward the government. Upon the ascertainment of such attitude, the directors will consider and act upon each individual case.

This action, according to Bradley Stoughton, secretary of the institute, immediately affects the status of 21 German scientists and one Austrian professor, who held either honorary or active membership in the organization. Mr. Stoughton said that among the many who have been exceedingly active in furthering Germany's war aims through scientific invention or research are Prof. B. Draeger of Luebeck, who invented the German gas mask. Before the war, he was one of Germany's leading mining engineers and perfected a steel helmet for miners, which was later modified for soldiers. Prof. L. Edeleanau, a Prussian authority on petroleum; H. C. Emil Schroedter, Dusseldorf, secretary of the German Society of Iron and Steel Makers; Walter Mathesius, copper expert, Charlottenburg, Germany; Dr. W. Oswald, leading German chemist of Coblentz, also are among those expelled from this society.

Form New Coal Company

To develop a new coal field in Garrett county, near Oakland, Md., at Offutt station on the main line of the Baltimore & Ohio railroad, the Taylor-Offutt Coal Co., 300 Chestnut street, Philadelphia, with branch office at Oakland, has been incorporated under the laws of Maryland. The company will operate under a lease from the Offutt estate, which owns the property. It is expected that coal will be mined from a 4-foot Freeport seam about Aug. 1, and the entire output will be consumed by the N. & G. Taylor Co., in the manufacture of high grade steel and tin plate at Cumberland, Md. Officers of the company follow: President, Hollinshead N. Taylor, of N. & G. Taylor Co., Philadelphia; vice president, William R. Offutt, Oakland, Md.; secretary, Julius C. Renninger, Oakland, Md., and treasurer, Wm. W. Justic, N. & G. Taylor Co., Philadelphia. N. Allen Stockton, consulting mining engineer, Real Estate Trust building, Philadelphna, is in charge of the development of the property.

Lukens Buys Land

The Lukens Steel Co., Coatesville, Pa., has purchased the 533-acre farm of Charles L. Huston, on the Delaware river between Wilmington and New Castle. The company already owns a tract close by.

Nation Supplies Essential Workmen

United States Employment Service With 340 Branch Offices Will Withdraw Men From Nonwar Industries to Supply Demands for Approximately 4,000,000 Essential Workers—Demand Heavy for Machinists and Toolmakers

CIRCULATED to inspire a more complete co-operation between industry and the United States Employment Service, Director General John B. Densmore has issued a call to all commercial organizations and employers of the country in an effort to meet the increasing pressure of the labor demands. As pointed out by Mr. Densmore, the great need is for publicity to assist his department in its work of finding new workers and withdrawing mechanics from nonessential enterprises. Since January of this year, the United States Employment Service is a separate branch of the department of labor and branch offices have been opened in nearly all large cities of each state. It is now the nation's central machine for recruiting and distributing labor.

In five months, 340 branch offices have been established in the industrial and agricultural districts, linking up all state and municipal services. It now is placing between 150,000 and 175,000 workers of all kinds each month. A large corps of traveling examiners is maintained whose specialty is placement, putting the men in their rightful places. An agreement has been reached with the post office department whereby all third and fourth class postmasters and rural carriers, numbering 100,000, approximately, are authorized to act as labor agents of the employment service.

Country Has Thirteen Districts

Similar to the federal reserve banking system the country has been divided into 13 districts, each of which has a superintendent. Each state is in charge of a federal state director, appointed only after recommendation by the state council of national defense and employers as well as employes in his respective state. State directors have charge of the federated offices and labor clearances in the state, while district superintendents have general supervision over the states within their districts and clearances between those states.

William E. Hall, Washington, is national director of the recruiting division of the employment service which is known as the public service reserve. It has approximately 20,000 enrollment agents who bring the potential war workers of the farming and industrial communities into direct contact with the national office at Washington.

Various war industries, including agriculture, will require over 4,000,000 workers during the next 12 months. It becomes the duty of the United States Employment Service, with its nation-wide recruiting machinery, to find these men and place them. Common labor demands for construction work are heaviest and next requirement is for machinists and toolmakers. To supply these demands, workmen are to be withdrawn from nonessential industries with a minimum of hardship, without wasting the effort of one man.

As an instance of the withdrawal of men from nonessential to place them in essential work, the American Chain Co., Bridgeport, Conn., is one of the first industries in the east to release or loan a number of its employes to a factory that is engaged in war work. It has loaned about 300 of its employes to the Remington Arms-Union Metallic Cartridge Co., Inc., in the same city. A plan has been devised in that state whereby idle or partially idle factories shall loan their men to essential plants, and when the pressing need for this extra labor is over they are to go back to the plants where they worked originally.

In addition to supplying workmen, the employment service is a clearing house of information for manufacturers. Its inquiry and education section, in charge of Roger W. Babson, the statistician, will answer inquiries on any phase of the labor problem. After and during the war, when soldiers return to this country and places must be found for them in industry, the employment service and public service reserve will have charge of the work.

Increase Will be Asked

Early reports stated no change in base wage rates for the ensuing year would be asked by the Amalgamated Association of Iron, Steel and Tin Workers, but official reports of the forty-third convention held recently at Joliet, Ill., indicate that delegates to the conference with manufacturers in Atlantic City, commencing June 17, will ask a 10 per cent increase for tin mill heaters, 10 per cent for doublers and 6 2/3 per cent for shearmen. Another demand scheduled is that tin workers shall be paid every alternating Saturday. A new scale for all tin house workers will be recommended for consideration by the conference. This association has approved a resolution to the effect that any member affiliated in any way with the Industrial Workers of the World shall immediately terminate such connection or be expelled from the Amalgamated association.

Railroad Turnover Large

To ascertain its labor turnover as well as the extent to which women are replacing men, the Pennsylvania railroad kept a record from May 27 to June 5 on all divisions of the lines east of Pittsburgh. In that 10-day period, 4477 employes left the company's service and 5122 were hired. The net gain of 645 occurred in the last two days of the period and was entirely sporadic. The figures relate to divisional forces only and exclude the forces in the general offices. In that time the number of women employed had increased from 5682 to 7227, all of which indicates a gain of 1545 women workers and a loss of 900 male employes. Since the total divisional forces recently have been averaging between 148,000 and 150,000, this 10-day test indicates a rate of 100 per cent a year. Few changes took place among the enginemen, conductors, etc., holding positions which are only reached after lengthy service. Other trainmen are coming and going constantly, however, such as shop employes, trackmen, etc. At present a scarcity exists in firemen, brakemen, car and engine repairmen, track laborers, etc. The great scarcity in car repairmen is reflected in that there are currently about 14,000 "bad order" cars on the Pennsylvania railroad's lines east, a figure which is approximately 4000 above normal.

Effective June 1, the Empire Steel & Iron Co. has advanced the wages of its employes 10 per cent at its plants at Catasauqua, Topton and Macungie, Pa., and Oxford, N. J.

Obituaries

FRANK H. BUHL, better known as "first citizen of Sharon, Pa.," died at his home in that city, June 7, aged 69. In the IRON TRADE REVIEW of Aug. 17, 1916, in an article describing the 300-acre farm, which he had donated for a park and model playground, a paragraph stated: "He knows that all the kiddies living within a radius of 50 miles from Sharon love him, and he wants no further recompense for his generous gifts." Up to that time, his donations to the city of Sharon were estimated in excess of $1,000,000. He was born in Detroit, Aug. 3, 1848. His father, Christian H. Buhl, was first mayor of that city and later moved to Sharon, where he founded the Sharon Iron Works. Frank H. Buhl became a clerk in the office, later was made manager of the company and in a few years, purchased the controlling interest. In 1896, when the Buhl Steel Co. was organized in Sharon, Mr. Buhl was elected president. One year later, the open-hearth department was placed in operation and the blooming mill soon after. It was absorbed by the National Steel Co., in March, 1889, and it later became a unit of the Carnegie Steel Co. With John Stevenson Jr., Mr. Buhl built the Sharon steel works in 1899, and in February, 1900, the Sharon Steel Co., commenced to operate at South Sharon, now Farrell, Pa. This plant was sold to the Steel corporation in 1902 and now is the Farrell works of the Carnegie Steel Co. Mr. Buhl then retired from active business life. The establishment of the two works which now are part of the Steel corporation, however, does not cover his entire connection with the iron and steel industry. To Mr. Buhl and Dan Eagan is given the credit for developing steel casting manufacture, which was almost unknown until they built the plant of the American Steel Castings Co., now the American Steel Foundries, at Sharon.

William A. Jenks, treasurer and general manager of the Sayles & Jenks Mfg. Co., Warren, Mass., died of heart failure at his home in Worcester, Mass., May 26, aged 64.

Rudolph R. Baizley, president of the John Baizley Iron Works, and of the City Iron Works & Machine Co., Philadelphia, died recently at Mount Clemens, Mich, aged 70 years. Mr. Baizley at the age of 20 became head of the John Baizley Iron Works, founded by his father. He was one of the first to do pile driving by hydraulic pressure, this work being undertaken in the construction of what is now Young's pier, Atlantic City, 40 years ago. John Baizley, his son, is treasurer and general manager of the City Iron Works & Machine Co.

Henry S. Bemis, aged 68, director of the Bemis & Call Hardware & Tool Co., Springfield, Mass., died suddenly of heart disease at his home in that city, June 4.

Edward C. Meier, president of the Heine Safety Boiler Co., Phoenixville,

FRANK H. BUHL

Pa., died suddenly at a recent meeting of the district production division of the Emergency Fleet corporation in Philadelphia. He was born at Wyandotte, Kan., April 28, 1870.

Edward T. Dravo, who at one time was vice president and director of the Pittsburgh Gage & Supply Co., Pittsburgh, died May 27 at his home in Sewickley, Pa., aged 83. He was a pioneer business man of Pittsburgh and retired from active business life about 20 years ago.

Eben Boye, Rockville Center, N. Y., aged 44, who served as assistant to the vice president in charge of sales, Manning, Maxwell & Moore, Inc., New York, died recently at Nassau hospital, Mineola, Long Island, N. Y., following an operation. Since 1900, he has been affiliated with that company's sales force, having had charge of its Chicago, Cleveland and Cincinnati offices at various times. His service with the company was interrupted for a short time when a few years ago he became sales manager of the Warner & Swasey Co., Cleveland, for a short time, and was then placed in charge of its Chicago office.

L. W. Anderson, who until he retired several years ago, was president of the Cincinnati Shaper Co., Cincinnati, O., died May 27, as a result of an operation upon his throat. Since his retirement, Mr. Anderson has been engaged in patriotic and Y. M. C. A. work.

David Spence, for a generation known as one of the leading experts in the making of pressed boiler plates, died at his home in Nashua, N. H., May 30, aged 69. For 10 years he was a member of the firm of Spence & Rideout, who operated the plate works at Nashua Junction, selling out a year ago on account of ill health.

George A. Leighton, who founded the Leighton Machine Co., Manchester, N. H., and served as its president for many years, died recently in Los Angeles, Cal., where he had lived for nearly 20 years. He maintained his interests in Manchester, and about two years ago organized an iron foundry there, in which town he resided each summer.

Henry Fairbanks, for many years vice president of the E. & T. Fairbanks Co., St. Johnsbury, Vt., died June 8 in that city, aged 88. Following his graduation from Dartmouth college and Andover Theological Seminary, Mr. Fairbanks was ordained a minister of the Congregational church. He preached for three years and then went to Dartmouth as professor of natural history and natural philosophy. In 1868 he became associated with the company founded by his father, Thaddeus Fairbanks.

J. Henry Optenberg, who organized the Optenberg Iron Works, Sheboygan, Wis., retiring from active business in March of this year because of ill health, died recently at his home in Sheboygan, aged 66. He founded the Optenberg Iron Works at New Holstein, Wis. in 1883 and in 1892 he sold the business to John Lauson of that city. The present Optenberg boiler, structural and machinery plant in Sheboygan was established by him in 1893. Mr. Optenberg learned his trade in the Battis Machine Works, Oshkosh, Wis.

Price Fixing Again Near at Hand

Iron and Steel Makers Not Yet Called to Washington for Quarterly Meeting But Next Week is Expected Time—Effect of Freight Rate Changes May Be Taken Into Account

WASHINGTON, June 11. — With the problem of steel distribution in the hands of the government and off their minds, at least as far as responsibility is concerned, the iron and steel producers of the country still have occasion to be gravely interested in what is going on in Washington. Among such questions as heavier taxation, higher freight rates, labor shortages, etc., to say nothing of submarine raids, western front changes and other developments which show themselves in steel orders, is the one of prices. It is to be answered, at least for the third quarter, before July 1.

The price-fixing committee of the war industries board, of which Robert S. Brookings is chairman, has not yet determined when the iron and steel industry, through its accredited representative, the steel and steel products committee of the American Iron and Steel institute, will be given an opportunity to be heard in the matter. So far it is impracticable to venture an opinion as to what may be done, despite the report of the newspapers that no attention will be paid to the McAdoo 25 per cent freight rate increase. Except in a general way, it is said the steel price question has not been before the committee.

Higher Price Requests Justified

Washington so far has not heard any intimation of what the position of the steel men will be as to higher or lower quotations, but the opinion is held that, on the face of things, the steel producers would be justified in seeking higher prices. Whether advanced quotations would be justified, is the question, however. This will depend largely upon the cost data being collected by the federal trade commission whose chairman, W. B. Colver, is a member of the price-fixing committee, and upon how strong a case the industry may present. One point to be considered also is the fact that the government today is the industry's biggest customer.

If the same time in the month as the three previous steel price conferences is to be about the period when this matter comes up again, then it would be logical to look to some day next week when the steel committee will come here to go over the many points involved. The price-fixing committee has had its hands full considering the price question on many commodities, including zinc, aluminum, domestic manganese ore, wool, lumber, etc., not forgetting pickled sheep pelts. Other such matters are likely to be acted upon before the steel meeting convenes.

Attack on Commodity Rates is Blocked

WASHINGTON, June 11.—Nothing for the present at least is to come out of the effort of the railroads to pyramid increases of freight rates on iron and steel products taking the pig iron, billet, and cast iron schedules, by putting them on the class instead of the commodity freight basis. The interstate commerce commission will deny the petitions recently filed by the carriers to bring about this practical wiping out of commodity rates. It is understood already some of the applications filed by the traffic association have been withdrawn voluntarily. The proposed increase on iron and steel rates still is on the commission docket but it is stated positively here that this will be stricken before June 25.

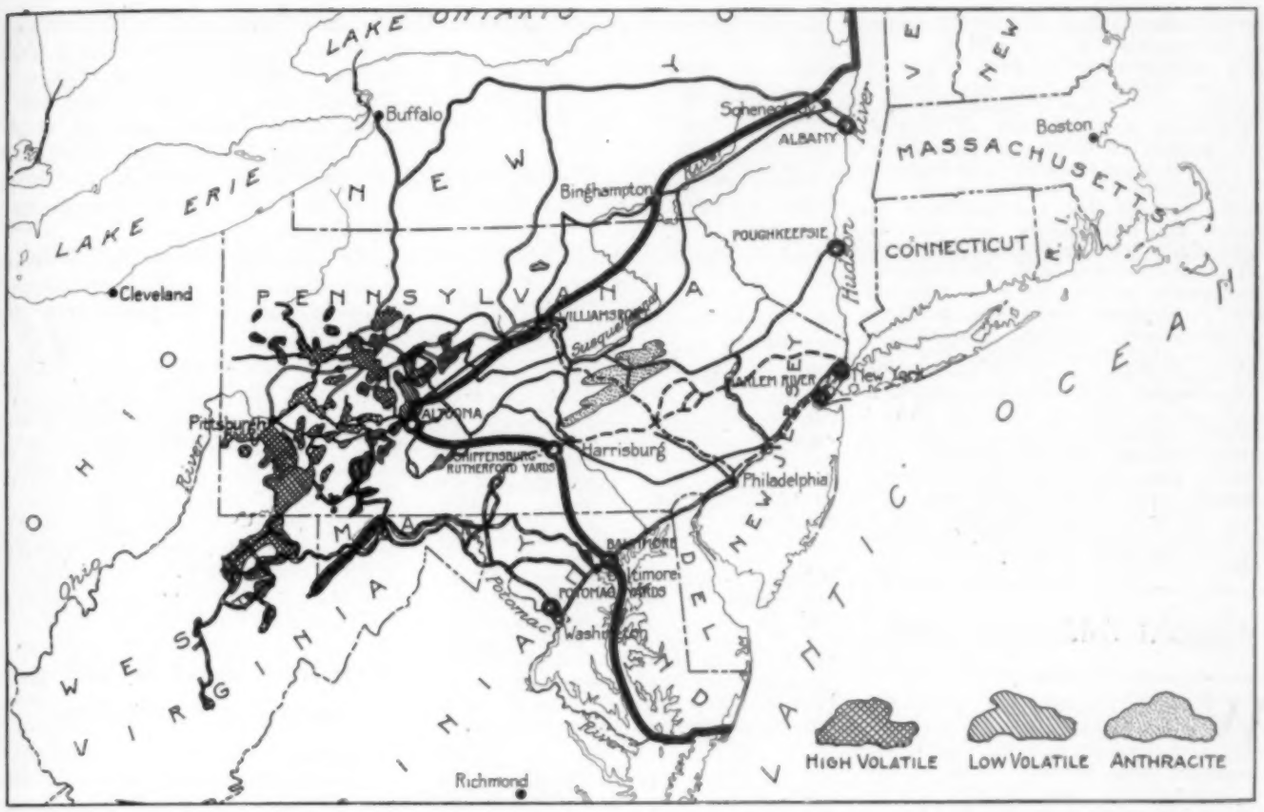
This action of the interstate commerce commission leaves Railroad Director McAdoo supreme in the matter of establishing freight rates. The commission takes the position that the director general of railroads should make the rates and that its function should be only to adjust them to preserve existing equalities. Doubt is expressed in official circles that the commission will grant an increase in the iron and steel schedules even after the 25 per cent general advance becomes effective June 25 until further notice.

The commission also has announced that all changes in freight rates on which orders have been issued to take effect between May 25 and June 25 are to be rescinded. These two moves in effect are stopping all changes in rates for the month elapsing betwen the announcement of the 25 per cent increase and the effective date. As soon as these are in force, it is expected that the commission will entertain and consider in turn such complaints as may be laid before it, in fulfilling its function to preserve prevailing differentials and rate relationships.

Only Essential Plants May Be Built

WASHINGTON, June 11.—War considerations will be the determining factor in the government's sanction of new factories or additions to plants in the northeastern district of the United States. The fuel, rail and war industries administrations jointly have decided to grant only such requests for permission to make extensions as can stand the acid test: Are they necessary for the winning of the war? The government thus hopes to avoid waste of fuel and nonessential employment of material and equipment. Extensions practically are forbidden unless they are imperative to the one big task.

The restricted area lies east of a line drawn from Montreal, Que., to within the vicinity of Saratoga, N. Y., southwest from there but north of Schenectady to Binghamton, continuing through Williamsport, Pa., to Altoona; back eastward to the Shippensburg-Rutherford yards near Harrisburg, southward through Baltimore



MAP SHOWING AREA IN WHICH PLANT CONSTRUCTION IS BARRED EXCEPT BY GOVERNMENT SANCTION

and Chesapeake Bay to the Maryland-Virginia state line, thence east along that line. The accompanying map, prepared by C. E. Lesher of the geological survey, defines this area.

A tightening of the restrictions governing the building of factories in all parts of the United States is indicated by the fuel administration's request: "Before locating new plants, or extensions of old plants, anywhere in the United States, either in or outside of this area, please confer with the general director of distribution of the fuel administration with regard to the possibility of obtaining adequate fuel supply".

J. Leonard Replogle, director of steel for the war board, in a letter to the old capital issues committee of the federal reserve board, urged curtailment of construction primarily to coserve pig iron. The fuel question also plays an important part as the fuel, rail and war industries administrations announce that the amount of fuel consumed in the northeastern district must not be increased.

Army is Calling For Many Engineer Officers

Washington, June 11.—Approximately 2000 additional engineer officers are immediately required for the army. To obtain these officers, with a minimum of delay, a board of examining officers will be sent out from Washington, for the purpose of examining such members of the engineering profession as may desire to serve their country in the present emergency.

All who are professionally and otherwise qualified may obtain the necessary blank forms of application by written request, addressed to the Chief of Engineers, United States Army, Washington, D. C. These applications should be filled out in strict compliance with the instructions thereon, and mailed to the Chief of Engineers, Washington. If the application is accepted, the applicant will be notified of the visit of the examining board to his locality, and advised of the time and place where the examination, both mental and physical, will be held. Should he be found qualified, his papers will then be forwarded to the Chief of Engineers of the army, at Washington, who will take the necessary steps to have him commissioned as an officer in the engineer reserve corps.

The examining board will only receive applications for appointment in the grades of first lieutenant and captain, and only those applicants meeting the stipulated requirements will be considered.

The age limits: For the grade of first lieutenant are 32 to 36 years; and for captain, 36 to 42. These limits may be slightly increased or decreased, in special cases, except that no one who is within the draft age will be considered.

Applicants must be engaged in the active practice of the engineering profession, in one of its various branches, and be in good physical condition.

On professional qualifications and experience, no set rules have been established. An applicant's fitness for commission will be determined by the examining board.

All applicants must be citizens of the United States.

No application will be received from anyone now in government service.

Applications will not be considered from any one born in a country with which the United States is at war, or born in a country allied with a country with which the United States is at war, even though he be a naturalized citizen of this country.

The war department in its call for applications further says:

All applicants accepted by the examining board will be commissioned within 10 days or two weeks, and within a few days thereafter will receive orders to report at an Engineer Officers' Training Camp, either at Camp Lee, Petersburg, Va., or at Camp Humphreys, Va., near Washington, where they will be given a course in military training previous to being assigned to duty with engineer troops.

Applicants must understand, however, that it is required of an engineer officer that he not only be professionally qualified, but must also possess the requisite qualities of leadership and temperament to fit him

for the command of troops. The case of each student officer will be carefully considered by a board of officers of the corps of engineers of the regular army, just previous to the completion of his course of instruction (unless circumstances necessitate an earlier consideration) and, as a result of the showing which he has made, he will either be allowed to retain his commission, or will be honorably discharged.

The government will allow traveling expenses at the rate of 7 cents per mile to applicants who may be commissioned, and they will also receive, while in the training camp, the regular pay of an officer of their rank.

Applicants who receive commissions and are ordered to camp should provide themselves only with the usual engineer officers' uniform, cap, puttees and tan shoes. For training purposes, the camp authorities will issue them, on memorandum receipt, equipment, and will provide the necessary sleeping accommodations.

Capital Odds and Ends

WASHINGTON, June 11.—Announcement has been made by the war trade board of its supplementary plan by which exports will be licensed for shipment to Norway. Among the associations and articles on which they will give their approval the plan refers to these: Oil and Color Mfgrs. association, sulphate of iron ore, copper, sulphuric acid; and the Norwegian Paper Makers' association, sulphur, hoop iron, baling wire, lead, and leather machine belting. The plan is:

"Applications for licenses to export commodities which are not to be consigned to a Norwegian import association will not be considered unless the prospective importer has given a guarantee certified by the Norwegian finance department and further certified by an American consul in Norway, who will furnish the importer a code word and an identification number. This code word and identification number should be forwarded by the importer to the prospective exporter in the United States and specified on Supplemental Information Sheet X-106 which should be attached to the application when applying for an export license. Temporary arrangements have been consummated, in accordance with which commodities consigned to Norwegian import associations may be exported on the basis of import certificates issued by such associations either subsequent or prior to May 10, 1918. Certificates issued prior to May 10, 1918, must be confirmed subsequent to May 10, 1918, by the import association which issued the same. Exporters in the United States should not apply for licenses to export to Norway on the basis of old import certificates until they are advised that such certificates have been confirmed."

* * *

Reparation in the sum of $217.75, overcharge on two carloads of old rails and fastenings from a point in Kansas to the Zelnicker Car Works at East St. Louis is sought by the Walter A. Zelnicker Supply Co., St. Louis. The complaint is lodged against the Missouri Pacific and the Warren & Ouachita Valley railroads.

* * *

Increase ranging from 30 to 40 per cent per gross ton in the handling charges on ore from cars to vessels at Portland, Me., is sought by the Grand Trunk Railway system.

* * *

Albert C. Richie, attorney general of the state of Maryland, has been made counsel of the war industries board. Mr. Richie has already taken up his new duties.

* * *

The Carolina, Clinchfield & Ohio railroad asks for cancellation of the carloads commodity rate of $1.62½ per 100 pounds on picric acid and dry trinitrotoluol, minimum weight 24,000 pounds, from Kingspoint, Tenn., to Rigand, Que.

* * *

Announcement has been made of the appointment of John W. Poe of Roswell, N. M., as federal fuel administrator of New Mexico, to fill the vacancy caused by the death of William C. McDonald. Mr. Poe is president of the First National bank of Roswell and a member of the state tax commission.

* * *

F. J. Goodfellow of Bradford, Pa., has been named by the fuel administration to be manager for apportionment and distribution of charcoal in carload lots for the district east of the Mississippi river and north of Mississippi, Alabama, Georgia and North Carolina. Mr. Goodfellow is secretary-treasurer of the National Wood Chemical association.

* * *

Drawback on hacksaws manufactured by the Quality Saw & Tool Works, Inc., Springfield, Mass., with the use of imported tungsten steel provided by the treasury decision of April 6, 1916, has been extended to provide for drawback on such articles manufactured by the Napier Saw Works, Inc., successor to the Quality company.

Ingot Output

In Past 12 Months Shows Decline From 1916 Production

During the 12-month period ended May 31, 1918, which covers practically the first year of war, the steel plants of the United States produced 40,140,000 tons of ingots. Compared with the calendar year 1916, when steel ingot production totaled 41,401,917 tons, this is a loss of about 1,260,000 tons. The loss was practically all in bessemer steel. Production of open hearth ingots for the 12 months being 30,228,271 tons, compared with 30,238,978 tons in 1916; while the bessemer tonnage was 9,757,794 tons, compared with 10,916,248 tons in 1916.

These statistics are based on the report just issued by the American Iron and Steel institute, covering 29 companies which in 1916 produced 88.14 per cent of the country's total tonnage. Their output in May was 3,256,965 tons, the largest total since October, 1917, and a gain of 93,555 tons compared with April. The May daily average of 105,063 tons showed a loss, as the April daily average was 105,447 tons.

The following table shows in detail the production of steel ingots by the 29 companies, from June, 1917, to May, 1918:

Mos.	Open hearth, gross tons	Bessemer, gross tons	All other, gross tons	Total, gross tons
June, 1917	2,265,772	809,552	8,605	3,083,929
July	2,152,479	777,171	9,465	2,939,115
August	2,251,013	863,873	8,331	3,123,217
Sept.	2,195,556	770,064	6,639	2,972,259
October	2,475,754	870,494	5,687	3,351,935
November	2,384,218	772,489	9,550	3,166,257
December	2,195,832	524,084	13,806	2,733,722
Jan., '18	1,763,356	429,588	10,901	2,203,845
February	1,805,233	454,457	14,051	2,273,741
March	2,331,048	763,255	16,078	3,110,381
April	2,377,974	769,249	16,187	3,163,410
May	2,444,863	796,244	15,858	3,256,965

Unfilled Steel Bookings Continue to Decline

A continued and steady decline marks the record of unfilled orders of the United States Steel Corp., since the first of the year. The total unfilled tonnage May 31, was 8,337,623, which is 404,259 tons less than it was April 30. This would seem to reflect the continued and increasing absence of commercial tonnage. A contrasting condition existed a year ago, when unfilled bookings of Jan. 31, 1917, totalled 11,474,054 tons. From that date they mounted steadily upward to April 30, 1917, when the record figure of 12,183,083 tons was reached. On May 31, 1917, the total was 11,886,591 tons, which descended month by month until the Nov. 30, 1917, figures of 8,897,106 tons was followed by the total of 9,381,718 tons on Dec. 31 of that year.

From April 30, 1916 to date, the monthly record of unfilled tonnage is as follows:

Date	Total	Change, tonnage	Change, per cent
May 31, 1918..	8,337,623	404,259—	4.60—
Apr. 30, 1918..	8,741,882	314,522—	3.47—
Mar. 31, 1918..	9,009,675	232,049—	2.49—
Feb. 28, 1918..	9,288,453	189,400—	1.99—
Jan. 31, 1918..	9,477,853	96,135+	1.02+
Dec. 31, 1917..	9,381,718	484,612+	5.44+
Nov. 30, 1917..	8,897,106	112,569—	1.24—
Oct. 31, 1917..	9,009,675	823,802—	8.37—
Sep. 30, 1917..	9,833,477	573,572—	5.51—
Aug. 31, 1917..	10,407,049	433,115—	4.16—
July 31, 1917..	10,844,164	539,123—	4.74—
June 30, 1917..	11,383,287	503,304—	4.24—
May 31, 1917..	11,886,591	296,492—	2.43—
Apr. 30, 1917..	12,183,083	471,439+	4.02+
Mar. 31, 1917..	11,711,644	134,947+	1.16+
Feb. 28, 1917..	11,576,697	102,643+	0.90+
Jan. 31, 1917..	11,474,054	73,232—	0.64—
Dec. 31, 1916..	11,547,286	488,744+	4.43+
Nov. 30, 1916..	11,058,542	1,043,282+	10.41+
Oct. 31, 1916..	10,015,260	492,676+	5.18+
Sep. 30, 1916..	9,522,584	137,133—	1.42—
Aug. 31, 1916..	9,660,357	66,765+	.69+
July 31, 1916..	9,593,592	46,866—	0.48—
June 30, 1916..	9,640,458	297,340—	3.09—
May 31, 1916..	9,937,798	108,247+	1.11+
Apr. 30, 1916..	9,829,551	498,550+	5.34+

Men of the Iron Trade

Personal News of a Business Character Regarding the Men of Affairs of the Industry

WILLIAM P. SNYDER, Jr., who was recently elected president of the Shenango Furnace Co., Pittsburgh, is a graduate of Yale university. He has served the company as assistant to the president and more recently as vice president in charge of operations for about eight years, advancing steadily to the important position he now holds. His father, William P. Snyder, Sr., who has been president of the company since its organization in 1906, was elected chairman of the board, a newly created position. By this change the latter will be relieved of many business responsibilities and be able to give his attention to matters of a personal character. C. D. Dyer, who is a member of the American Iron and Steel institute's subcommittee on iron, iron ore and lake transportation, was re-elected vice president but will be relieved of some of his duties on account of the outside work he is doing, particularly in connection with that committee. George L. Collord, who has been general manager of the company's furnaces and who was recently promoted to the position of vice president and general manager is a graduate of Princeton university. Formerly he was general superintendent of blast furnaces for the Clairton Steel Co. He resigned that position in 1903 to assume similar duties with the Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., then operated by the Republic Iron & Steel Co. A little over 10 years ago, or in January, 1908, he entered the service of the Shenango Furnace Co. as general manager of furnaces. Henry Irwin, Jr., and H. N. Wilson were re-elected treasurer and secretary, respectively. The Shenango Furnace Co. had as its parent interest W. P. Snyder & Co., which was organized in 1888. In 1917, it took over the Shenango Steamship & Transportation Co., operating three great lakes ore freighters. The furnace company has three stacks at Sharpsville, Pa. Other units of W. P. Snyder & Co. include the Shenango Steamship Co., organized in 1907, and operating two great lakes ore freighters; the Aontoine Ore Co., with mines on the Menominee range in Michigan, and the Lake Erie Limestone Co., a Pennsylvania corporation, with quarries near Struthers, O.

George K. McLeod, formerly of Cleveland, has been made manager of the Perfection Tube Co., Painesville, O.

H. M. Wilson, secretary of the Shenango Furnace Co., Pittsburgh, who has been seriously ill from pneumonia for some time is recovering slowly.

Walter J. Cummings, vice president of the McGuire-Cummings Mfg Co., Chicago, has been elected president to succeed John J. Cummings, deceased.

E. C. Burnes, formerly affiliated with Alley & Page, is now located in the sales department of the Matlack Coal & Iron Corp., 52 Vanderbilt avenue, New York City.

G. M. Barkley of the sales department of the Cleveland Steel Co., Cleveland, has gone to Washington to serve as one of the assistants of Steel Director G. Leonard Replogle.

C. W. Bonfield, formerly of the New York office of the Wm. F. Davis Machine Tool Co., Inc., has been appointed Washington representative of the same company with offices at 945 Pennsylvania avenue.

H. G. Benedict recently resigned his position with the Glenn L. Martin Co., Cleveland, to become works manager of the Steel Products Co., that city, which is engaged in the manufacture of airplane-engine parts.

C. B. Leeds, who has been affiliated with National Automatic Tool Co., Richmond, Ind., for some time, is now employed in the machinery sales department of the Cadillac Tool Co., Detroit.

J. W. Dickson, salesman in the offices of Edmund W. Mudge Co., Pittsburgh, has resigned and become associated with the war industries board under J. Leonard Replogle, director of the steel supply.

Carl Anderson, vice president of the Oakes Pressed Steel Co., Minneapolis, Minn., recently visited a number of old acquaintances in Worcester, Mass. He formerly was superintendent of the Worcester Pressed Steel Co.

D. M. Perrill has been made advertising manager of the Lyon Metallic Mfg. Co., Aurora, Ill., in charge of advertising and promotion work. He recently resigned from a similar position with the Lodge & Shipley Machine Tool Co., Cincinnati.

R. J. Sheridan is New York resident sales manager for the Parkesburg Iron Co., Parkesburg, Pa., while G. W. Denyven is Boston resident sales manager. Effective July 1, J. A. Kinkead will serve in that capacity in San Francisco.

Henry G. Wickham, president of the Matawan Steel & Iron Co., Matawan, N. J., is doing experimental work for the government with the Standard Aeroplane Corp., Elizabeth, N. J. His brother-in-law, L. C. Gorsuch, has been made general manager of the Matawan steel and iron plant.

Leon Belge, managing engineer of the export and import firm of Philippe Berger, 2 Square de l'Opera, Paris, France, has had to postpone his journey to the United States in the interests of his company, owing to the fact that circumstances connected with the war have impeded the work it has in hand.

James H. Hay became superintendent of the Lavine Gear Co., Racine, Wis., upon his resignation from a similar capacity with the Wallis Tractor Co., that city. He became superintendent of the Wallis plant upon its removal from Ohio several years ago.

H. D. Gates, who resigned four years ago from the position of sales manager of the Pangborn Corp., Hagerstown, Md., to take charge of sales of the Mott Sand Blast Mfg. Co., New York, has returned to the Pangborn Corp. to assume his former duties. F. J. Hull likewise has returned as assistant engineer. When he resigned about five years ago to become affiliated with the Mott Sand Blast organization, he held the position of engineer. Charles T. Bird, who has been identified with the production and engineering departments for a year has been transferred to the sales department of the Pangborn Corp., in charge of the home territory embracing eastern Pennsylvania, southern New York, New Jersey, Delaware, Maryland, District of Columbia and Virgnia. His headquarters will be at Hagerstown, Md.

Men of the Iron Trade

Personal News of a Business Character Regarding the Men of Affairs of the Industry

WILLIAM W. Corlett has been appointed general solicitor of the United States Steel Corp., by Chairman E. H. Gary. He has been acting general solicitor since May of last year. He now succeeds Col. Raynal C. Bolling, who was killed in airplane service in France in April. Mr. Corlett is a graduate of Harvard university and Columbia law school, and became affiliated with the Steel corporation's legal staff about 10 years ago.

Newlin T. Booth, formerly assistant superintendent of the steel foundry department of the Steelton, Pa., plant of the Bethlehem Steel Corp., South Bethlehem, Pa., was recently made superintendent to succeed Bent L. Weaver, resigned. Mr. Weaver is now head of the Vulcan Iron Works, Wilkesbarre, Pa.

Morris W. Bush, president of the Shelby Iron Co., the Majestic Coal Co., the Imperial Coal & Coke Co., Birmingham, Ala., and connected with other large interests in Alabama, has been named as Birmingham regional director of the resources and conversion section of the war industries board.

Robert J. Anderson, who has been United States government resident chemist at Youngstown, O., attached to the government laboratories of the Youngstown Sheet & Tube Co., has been transferred to the bureau of aircraft production and is now located in Pittsburgh at the general laboratories of the signal corps.

John F. Darrah becomes the sole representative of the Link-Belt Co., Chicago, in Alabama, since E. Francis McCrossin has found it necessary to withdraw from the firm of McCrossin & Darrah on account of his engineering work, which requires his entire attention. Mr. Darrah is located at 751 Brown-Marx building, Birmingham, Ala.

William E. Manning, vice president and general manager of sales of the Youngstown Sheet & Tube Co., Youngstown, O., who has been discharging the duties of secretary for a number of years, has been succeeded in the latter office by LeRoy A. Manchester, the company's general counsel. Mr. Manning will continue to give his attention to the duties of the vice presidency and of the sales management.

N. E. Wahlberg, who for some time was assistant chief engineer of the General Motors Co., Detroit, and recently chief engineer of the Nash Motors Co., Kenosha, Wis., has reported in Washington. He will be granted a major's commission in the army. His orders were to prepare for immediate service in Europe and as far as is known, he will be assigned to the ordnance department.

Harry E. Ensley resigned recently as vice president of the Wharton & Northern railroad, which is owned by the Wharton Steel Co., Wharton, N. J. He will confine his work hereafter to his duties as chief counsel for both corporations. Lewis E. Waring was made assistant to the president of the Wharton Steel Co., recently, as well as vice president of the railroad.

R. Bryant Henning, former assistant purchasing agent, succeeded W. I. Denny as chief purchasing agent of the Davis Mfg. Co., Milwaukee, builder of tractor engines, now a part of the Avery Co., Peoria, Ill., upon the latter's resignation to accept a commission in the ordnance department of the army. Mr. Denny was ordered to report for duty at Chicago.

L. Stewart Love, who formerly was sales manager for the Sherritt & Stoer Co., Philadelphia, machine tool dealer, with George A. and Edward L. Steinle of the Steinle Turret Machine Co., Madison, Wis., has organized the Machine Tool Engineering Co., Singer building, New York. A machine tool business will be conducted and the company will specialize in complete manufacturing equipments, machine press and forge shops.

Arthur G. Kimball has been elected president of Landers, Frary & Clark, New Britain, Conn., to succeed Charles F. Smith, for many years president and treasurer, who has been made chairman of the board of directors. Mr. Smith retains his position as treasurer. Joseph F Lamb has been added as a director of the corporation. Maxwell S. Hart, who has been vice president of the Hart & Hutchinson Mfg. Co., New Britain, Conn., has been elected president to succeed Howard S. Hart, who has been made chairman of the board of directors. Loren E. Page, secretary, assumes the added duties of vice president and Donald R. Hart, formerly assistant treasurer becomes treasurer in place of Norman P. Cooley, who remains a director.

Charles W. Schmidt, formerly connected with the Philadelphia office of the Taylor-Wharton Iron & Steel Co., High Bridge, N. J., has been promoted to be district sales manager, with headquarters in the Oliver building, Pittsburgh. He will represent that company and its subsidiaries, the Tioga Steel & Iron Co., Philadelphia, and Wm. Wharton Jr., & Co., Easton, Pa. Mr. Schmidt succeeds J. S. Morrison, who recently resigned.

M. C. Turpin, formerly assistant to the manager of the publicity department of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., resigned recently to enter federal service. He will be located at Washington as assistant to the manager of the technical publicity bureau, ordnance department. Mr. Turpin will handle information from the war department for manufacturers, through the medium of the trade journals.

J. C. Kimes, division freight agent of the Baltimore & Ohio railroad at Pittsburgh, has resigned, effective June 15, to become traffic manager of the United States Steel Corp., ordnance department, Union Arcade building, that city. Mr. Kimes will have charge of the movement of material entering into the construction of the ordnance plant to be built on Neville island as well as the movement of the guns and shells after the plant is built.

George A. Gaston will continue as president of Gaston, Williams & Wigmore, Inc., although William H. Williams and James A. Wigmore have retired. At an organization meeting of the new board, Charles A. Corliss, president of the Lamont, Corliss & Co., was elected a director. Mr. Corliss, Harry Payne Whitney, and G. M. Dahl, vice president of the Chase National Bank, were elected directors of the Gaston, Williams & Wigmore Steamship Co., Ltd.

Iron and Steel Men in War Machine

Howard P. Ingels, Secretary, War Industries Board

HOWARD P. INGELS is one of the best informed men in Washington on general industrial conditions of the country. That means he is one of the best informed men with reference to the iron and steel industry today. As secretary of the war industries board, he has to be. The board is in contact with the iron and steel industry perhaps more than any other line of business because it is difficult to conceive of any wager requirement of war in which iron and steel does not serve as an essential. Mr. Ingels' position requires his presence at every meeting held by the board and its sessions are almost continuous. This has brought him prominently into all of the general sessions which the war industries board has held with the iron and steel producers of the country. He is present at all meetings where the board's policies are decided upon. He keeps the records of every meeting and consequently, his familiarity with the inner workings of this important branch of the war machine is comprehensive. It is Mr. Ingels who is responsible for the collection of the data, upon which the war industries board bases its course of procedure and without which it could not function for long. To this position of prominence and responsibility, he has risen from that of assistant secretary of the original general munitions board, out of which grew the present war industries board. At one time he served as acting secretary of the price-fixing committee of the board. In fact, he has had considerable to do with the price-fixing activities of that body.

Mr. Ingels is a comparatively young man and has gone far since 1905, when he was graduated as a mechanical engineer from the University of Kentucky. His first position was in the engineering department of the American Car & Foundry Co. By reason of his ability, he soon was promoted to take charge of the company's engineering department at Milton, Pa. For a while, he was New York sales manager in charge of export business of the Youngstown Car Mfg. Co., Youngstown, O. He then became in turn, engineer, sales manager and assistant general manager of the William Todd Co., Youngstown.

In 1915, he identified himself with war business by placing several orders for 6-inch shells for Great Britain with American makers. He acted as consulting engineer and manager of a plant which produced 2000 shells daily. Mr. Ingels has been devoting his entire time to the government for over a year and is one of the one-dollar men, and he is one of that vigorous, aggressive and resourceful army of younger men at Washington to whom this war is giving the opportunity to show their mettle. His rapid rise to his present position of responsibility and trust, strikingly reflects the intelligent grasp which he has possessed regarding the essential part which general industry bears to the war machine and as to the sound and constructive methods whereby production can be brought into ac- effective co-ordination with military demands.

HOWARD P. INGELS

Iron and Steel Financial News

Up-to-the-Minute Fact and Comment Collected and Sifted For Busy Readers

Business Closely Follows Tax Hearings

NEWS from Washington that through an arrangement between the war industries board and the American Iron and Steel institute, the government was to have complete control of the steel industry, caused some selling of steel stocks last Friday, declines of about 1 point being general in the steel list.

But the importance of the development was almost lost in Wall street, where keenest attention was centered on the proposed revenue legislation. Secretary McAdoo last week wrote a letter to Representative Kitchen, chairman of the house ways and means committee, in which he went into considerable detail, outlining the attitude of the treasury. He said that if the present rate of expenditures should continue for six months, the treasury will actually have to disburse $24,000,000,000 during the fiscal year ending June 30, 1919. During the fiscal year ending June 30, 1918, disbursements will have been between $12,500,000,000 and $13,000,000,000, of which one-third or $4,000,000,000 will have been raised by taxes and two-thirds or $8,000,000,000 by loans. In view of the tremendous increase the next year Secretary McAdoo urged that at least $8,000,000,000 should be raised by taxes.

Wants More Profit Taxes

The secretary offered the following suggestion as to the proposed revenue legislation:

"That a real war profits tax at a high rate be levied on all war profits. This tax should be superimposed upon the existing excess profits tax in such a way that the taxpayer should be required to pay whichever tax is the greater. The existing excess profits tax should be amended in certain important particulars so as to remove inequalities.

"That there should be a substantial increase in the amount of normal income tax upon socalled unearned incomes. Under existing law earned incomes above certain exemptions are taxed 4 per cent as an income tax and 8 per cent as an excess profits tax making a total of 12 per cent, while unearned incomes, derived from securities, etc., are taxed only 4 per cent. The 8 per cent tax should be recognized as an income tax and the rate of 12 per cent (4 per cent normal and 8 per cent excess profits), in respect to earned incomes, while a higher rate than 12 per cent should be imposed on unearned incomes.

"That heavy taxation be imposed upon all luxuries."

Committee Hearings Opened

Hearings on the proposed legislation opened last Friday. Benjamin Marsh, executive secretary of the Farmers National Committee on War Finance was the first witness before the ways and means committee. He advanced the opinion that the net taxable income of corporations should be subjected to a tax of 50 per cent on both excess and war profits taxes. He argued that all incomes up to $50,000 were sufficient for patriotic citizens and that all incomes above this amount should be taken for war purposes. Mr. Marsh's theories, while somewhat remarkable, probably will be quite moderate as compared with some which will be advanced before the hearings are completed. Business men are becoming more and more awake to the importance of the tax legislation and it is probable they will have something to say, not with a view to evading the responsibility of the war burden, but to do all possible to induce legislation along sane and equitable lines.

Earnings Reduced Despite Capacity Operation

After a year, with all facilities worked to capacity, due to the unusual demand, the International Nickel Co. reports that its gross earnings for the fiscal year ended March 31, 1918, were $16,181,501, or $798,107 less than the year before. The comparative income account for fiscal years ended March 31, is as follows:

	1918	1917	1916
†Earnings	15,791,485	16,728,913	14,091,612
Other income	390,016	250,695	249,354
Gross income	16,181,501	16,979,608	14,340,966
Exp., tax, &c.	*4,200,860	1,430,371	870,860
Deprec., &c.	1,850,653	1,991,267	1,721,827
Surplus	10,129,988	13,557,970	11,748,278
Preferred div.	534,756	534,756	534,756
Common div.	‡7,530,228	10,040,304	9,431,803
Balance	2,065,004	2,982,910	1,781,719

*Includes $3,590,836 federal and state taxes.

†Earnings of all properties after deducting manufacturing, selling expense, ordinary repairs, maintenance, and foreign taxes.

‡In addition, the company paid from surplus an extra dividend (Red Cross) of $418,346 on the common stock.

Business prospects point forward to full operations in the current year, including the extensive additions made to the corporation's plants. W. A. Bostwick, president, in his annual statement, said that the plant additions of the last three years had prevented a serious shortage in the supply of nickel and a consequent delay in the war programs of the allied countries.

"The company's new refinery at Port Colborne, Ontario," he added, "is now approaching completion, and it is anticipated that it will be placed in operation during the coming summer unless still further difficulties of shortage of labor and materials are experienced."

Buys Steel Foundry

The Universal Draft Gear Attachment Co. has bought from the Whiting Foundry Equipment Co. the latter's steel casting works at 147th and Lincoln streets, Harvey, Ill., the price being $75,000. The purchasing company is controlled by John T. and James S. Llewellyn of the Chicago Malleable Castings Co., and S. J. Llewellyn of the Interstate Iron & Steel Co., who have formed the Allied Steel Castings Co., which will operate the plant. The property includes about five acres, improved with brick buildings, formerly owned by the Calumet Engineering Co., about 125x500 feet. Additional equipment costing about $75,000 will be installed and the plant will have a capacity of about 1000 tons of castings per month.

Profits Are Decreased

A decrease of $969,505 in net profits from the record-breaking year of 1916-1917 is noted in the report of Dominion Steel Corp., for the fiscal year ending March 31, 1918. Net profits for the year amounted to $7,601,660 as against $8,571,165 for the previous year. Last

year's net profits, however, were an increase of $4,586,435 over two years ago. Earnings were at the rate of $23.68 a share on the $32,097,000 common stock outstanding, as against $26.71 last year and $9.39 two years previously. Net earnings after the usual administration charges, taxes and depreciation were $11,030,112 as against $12,967,874 a year ago, a decrease of $1,937,762. The fact that the decrease in the balance available for the common stock was nearly $1,000,000 less is to be explained by a marked decrease in the deductions necessary for depreciation, interest and sinking funds, while the wiping out of the item of discount on securities sold a year ago eliminated an annual charge that had been varying from about $100,000 to $325,000.

As to the decrease of $1,937,762 in net earnings the war tax provided for a year ago was the tax of the previous year, 1915-16, when earnings were relatively small, while the tax charged up this year is the tax for the record-breaking year of 1916-17.

Financial Crop Ends

At a meeting of stockholders of the General American Tank Car Corp., to be held June 25, the proposal to increase the authorized 7 per cent cumulative first preferred stock from $2,500,000 to $4,000,000 will be voted upon.

* * *

G. W. Bent Co., 93 Causeway street, Boston, and 42 Main street, Lewiston, Me., has purchased the business of the Gibson Bedstead Co., 25 George street, Boston. It will continue the manufacture of the Gibson company's leading patterns at its Everett plant, in conjunction with its own extensive line.

* * *

The Asbestos Protected Metal Co., Pittsburgh, which since the establishment in 1905 has been known by that title, has changed its name to the Aspromet Co. The change became effective recently. When the company was organized its sole product was asbestos protected metal but since then other lines of building materials have been added, causing the old name to be misleading.

* * *

For the nine months ended March 31, the Pittsburgh Steel Co., Pittsburgh, reports sales aggregating $28,242,031, as compared with $22,822,118 in the same period a year ago. Net profits however, were $3,891,204 this year as against $7,460,422 for last. This figure of $3,891,204 was reached after setting aside $2,218,163, estimated income and excess profits taxes.

* * *

A change in the ownership of the American Range & Foundry Co., Cleveland, recently has taken place and the firm name has been changed to the Vahan Foundry Co. Officers of the new organization follow: President, Frank S. Shields, president, Cleveland Milling Machine Co.; vice president, R. B. McHenry, formerly affiliated with the Johnston & Jennings Co. and Joseph Dyson & Son; and secretary-treasurer, L. M. Lucius. A specialty will be made of light and medium gray iron castings.

* * *

On June 24, receivers for the Camden Iron Works, Trenton, N. J., will make application before Judge Heaight in the United States district court for permission to pay $300,000 in dividends on unsecured claims against the company, totalling $1,000,000. Walter Wood of R. D. Wood & Co., is seeking to foreclose a mortgage against the iron works for $27,000. The court announced it would order the payment of the mortgage on the condition that the proceeds are applied in the cancellation of claims held by the iron works against Walter Wood and his company, aggregating $48,000.

* * *

The National Stove Repair Co., Miamisburg, O., recently organized, has acquired the plant of the Hoover & Gamble Foundry Co., and is specializing in stove and range repair parts. The stove and range repair department of the John B. Morris Co., Cincinnati, has been purchased by the National company which will continue to make this line of work. In addition to the large foundry, the plant at Miamisburg has a warehouse containing 50,000 square feet of floor space in which an extensive line of castings and patterns will be carried in stock.

* * *

By the issuance of serial 7 per cent coupon gold notes, dated April 1, 1918, maturing at the rate of $200,000 per year for five years, the Wright Wire Co., Worcester and Palmer, Mass., will increase its capital to $1,000,000. Liggett & Drexel, New York bankers have bought the issue and will offer it to the public. Proceeds will provide for future extensions, but since George M. Wright, president and manager declares that no new construction will commence until after the war, the proposed rod mill erection at Palmer is delayed.

Open New Plant

The Smith Gas Engineering Co. has about completed its new plant at Moraine, O., near Dayton, and will shortly start manufacturing. The main building is 110 x 420 feet and is being equipped with modern tools to take care of the increased demand for Smith gas producers. The company's Lexington plant, which is now working to capacity, will be kept in operation. The main offices of the company will be moved to Dayton about April 15.

A new grade school which just has been erected at New Enterprise, Bedford county, Pa., has been named in honor of J. Leonard Replogle, who obtained his early education on the site where the new building is located.

Toluol Lots

For General Consumption Released—Navy Buys Solvent Naphtha

New York, June 8.—Action on a number of applications for toluol for June delivery to commercial consumers was taken by the toluol division of the war industries board this week. Such releases are being made sparingly. As far as known, the government price of $1.50 per gallon at producers' plants for tank cars, and $1.55 in drums, is being quoted on all commercial business. Large future orders for solvent naphtha have been distributed by the navy department and the tone of the market is exceedingly strong. Prices continue unchanged.

Large sales of spot phenol were made this week at 48 to 52 cents per pound.

Coke Oven By-Products

Spot

Per Gallon at Producers Plant	
Pure benzol	$0.25 to .30
Toluol (on sales sanctioned by governm't) (tank cars)	1.50
Toluol (drums)	1.55
Solvent naphtha	.18 to .25
Per Pound at Producers Plant	
Phenol	$0.48 to .52
Naphthalin (nominal)	.10 to .12
Per 100 Pounds at Seaboard	
Sulphate of ammonia	$5.65 to 5.75

Contract

Pure benzol	$0.25 to .30
Toluol	no market
Solvent naphtha	.18 to .22
Per Pound at Producers Plant	
Phenol nominal.	
Per 100 Pounds at Seaboard	
Sulphate of ammonia	nominal

The quantity available, steadily is becoming larger. In naphthalin, all producers continue far behind in deliveries, and are unable to make sales, so that the market is nominal.

The lower prices on benzol have brought out a large amount of business on the basis of 25 to 30 cents per gallon chiefly for spot delivery. There is growing disinclination among producers to book large forward contracts for benzol, because a large amount of business is expected to be placed by the government.

Practically all of the current output of sulphate of ammonia is going to the government. Government orders already distributed are sufficient to take up the entire output over the next six or eight weeks. The price to the government is $4.50 per 100 pounds at producers' plants. On commercial business the prices nominally are at $5.65 to $5.75 per 100 pounds at seaboard.

Need More Tools for Shipyards

Pyramiding Inquiries Continue to Come for Machines for Shipbuilding Plants—Huge Requirements Are Involved in Lists Now on the Market—Government Fabricating Plants Call for Much Equipment

SHIPBUILDING constitutes the major influence in the machine tool market at the present time. In addition to the eastern yards whose large inquiries came on the market last week, western builders are becoming increasingly important from the machine tool standpoint. The Skinner & Eddy Corp., Seattle, which recently took over the shipyards of the Seattle Drydock & Construction Co., is planning extensive plant additions. In that connection alone about $1,600,000 worth of equipment is being sought. The New York Shipbuilding Co. and the Newport News Shipbuilding & Drydock Co. are still in the market for extensive machine tool requirements. Other shipbuilding plants which will involve millions of dollars worth of machinery and equipment are under consideration. Much structural shop equipment is being called for by the two fabricating plants which the McClintic-Marshall Construction Co. will erect for the government to produce ship material. In the central and western districts, the railroad lists occupy the greatest attention, although new munitions contracts are offering some business. Continuous pressure on the manufacturers engaged in war work is suppling a consistent demand for duplicate tools to increase production. New shell and ordnance work is expected in the Chicago district, but few inquiries are coming on the market from this source. Motor truck contracts are developing considerable business from Detroit. One large manufacturer in that city is expected to issue a large list of tools during the next few weeks. Deliveries continue to be slow on many classes of tools. Planers in particular are difficult to obtain, and builders of this class of equipment report that the government and prime producers of war supplies are taking all their available output. One manufacturer of planers states that the manufacture of planers up to about 48 inches is being discouraged, and that the government will require all of those which are produced in larger sizes. An advance of about 25 per cent on planers is expected, and other classes of tools are advancing but in smaller amounts. Under the new conditions machine tool dealers are serving more as procurement agents for buyers, rather than sales agents for manufacturers.

Government Repair Shops Require Equipment

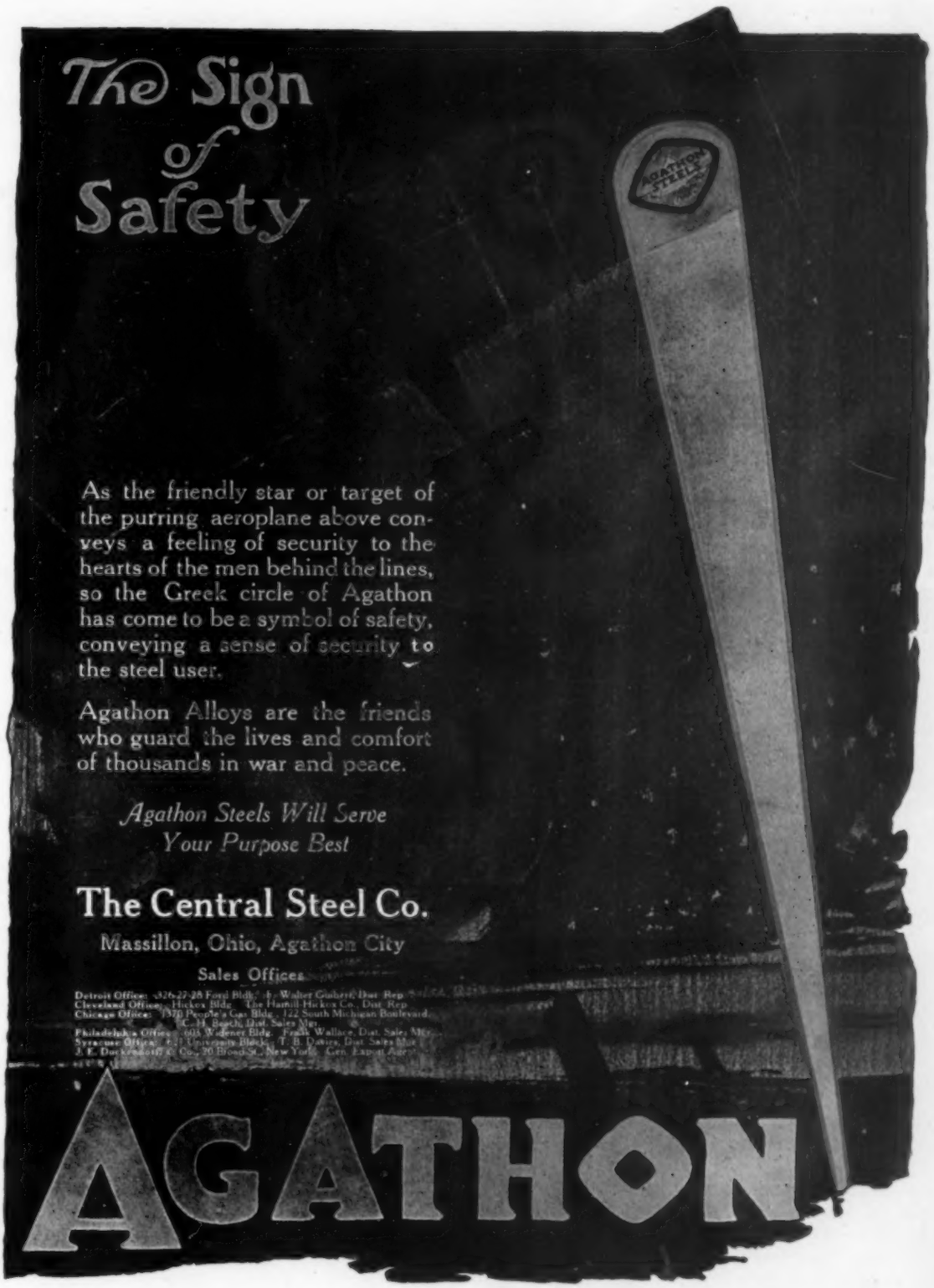
DESPITE the huge volume of business now pending, trading in the eastern machine tool market still is being confined chiefly to small, miscellaneous lots. No formal action has yet been taken on the requirements for the ordnance plants to be erected by the Midvale and United States Steel corporations, which combined form the great bulk of the machine tool business in prospect, nor have the railroads been large buyers during the past week. With these latter interests it is understood that uncertainty continues to exist over appropriations, but it is believed in well-informed quarters that the buying of railroad equipment will set in before the end of this month in a volume far larger than indicated by current lists.

Large Demands From Western Shipyards

Skinner & Eddy Corp., Seattle, one of the largest shipbuilding interests on the western coast, is inquiring for machine tools in the amount of $1,600,000 for a plant extension ordered in connection with the recent purchase of the works of the Seattle Construction & Drydock Co. This inquiry in connection with negotiations on large lists issued by three eastern shipyards mentioned last week, constitutes shipbuilding as the controlling factor in the eastern market. Little actual buying has been consummated on any of these requirements. It now develops that the requirements of the New York Shipbuilding Co. and the Newport News Shipbuilding & Drydock Co. will aggregate upwards of $2,000,000 worth of tools. The Bethlehem Shipbuilding Co., which has been planning the construction of a shipyard on the Pacific coast and another on the Atlantic coast, has temporarily, at least, abandoned this latter project. The Sun Shipbuilding Co. is expected to be a large buyer of machine tool equipment shortly, as a result of plans now under way for materially increasing its plant. The Republic Shipbuilding & Drydock Co., Baltimore, is planning to construct a $2,000,000 yard near that city, for which considerable equipment will be required. The quartermaster's department closed during the past week on 40 tools of various types for export to France. Nine milling machines also have been purchased for the Pensacola aviation school in Florida. The American Steel & Forge Corp., Philadelphia, is asking prices on a large list of machines for a proposed plant for the production of crank shafts. Prices on machine tools continue to climb. During the past week a line of milling machines has gone up 10 per cent, while an equal advance also has been noted in sensitive drills. A well-known make of lathes is expected to go up 10 per cent before the end of this week. Planers are expected to advance 25 per cent.

Heavy Crane Demand Continues

The Westinghouse Church Kerr Co. has closed on the 10 electric cranes recently inquired upon for the Baltimore & Ohio shops at Glenwood, Pa. The Morgan Engineering Co., Alliance, O., and the Toledo Bridge & Crane Co., Toledo, O., secured this business. The Westinghouse company is now in the market for 7 ½-


The Sign of Safety
As the friendly star or target of the purring aeroplane above conveys a feeling of security to the hearts of the men behind the lines, so the Greek circle of Agathon has come to be a symbol of safety, conveying a sense of security to the steel user.
Agathon Alloys are the friends who guard the lives and comfort of thousands in war and peace.
Agathon Steels Will Serve Your Purpose Best
The Central Steel Co.
Massillon, Ohio, Agathon City
Sales Offices
AGATHON

ton traveler for another project. The Pennsylvania railroad is inquiring through its Philadelphia office for eight 100-ton electric cranes with 88-foot span. Bids are to be in by June 19. The New Britain Machine Co., New Britain, Conn., is inquiring for two 5-ton cranes, of 20 and 25-foot span respectively, and one 10-ton crane of 40-foot span. The Groton Iron Works, Groton, Conn., has amplfied its recent inquiry and is now asking for seven cranes of five, 10, 15 and 20 tons capacity. The Industrial Materials Co., 104 West Fortieth street, New York, is in the market for 47 electric wharf cranes for export to Norway. Twenty of these cranes are to be of one and a half tons capacity each, while the remainder are to be of two and one-half and five tons capacity. The United States Cast Iron Pipe & Foundry Co. is inquiring for two 5-ton and two 10-ton traveling cranes for its plant at Scottsdale, Pa. The Worthington Pump & Machinery Corp. is in the market for a 15 or 20-ton locomotive crane for delivery to Buffalo. The Cape Ann Anchor and Forge Co., Gloucester, Mass., is inquiring for a 15-ton 50-foot span crane. L. H. Shattuck Co., Manchester, N. H., is inquiring for a 15-ton, 24-foot span crane. The Atlantic Refining Co., Philadelphia, is in the market for a 5-ton 20-foot span crane. The Vulcan Detinning Co., Sewaren, N. J., is inquiring for a 7½-ton 24-foot crane. The war department has awarded two 75-ton cranes to the Toledo Bridge & Crane Co., Toledo, O., and eleven 10-ton cranes to Pawling & Harnischfeger, Milwaukee. During the past week the Hay Foundry & Iron Works, Newark, N. J., has awarded three 10-ton cranes to the Morgan Engineering Co. The Terry Shipbuilding Co., Savannah, Ga., has purchased four 10-ton electric cranes from the Cleveland Crane & Engineering Co. The American Locomotive Co. has bought a 15-ton crane from the Morgan Engineering Co.

Will Build Motor Repair Shops in the South

Kearney-Haynes Co., San Antonio, Tex., has been awarded the contract for the construction of motor repair shops to cost approximately $1,000,000. These shops will take the place of a number of smaller army stations at different points. The present motor repair shops, designated as Mechanical Repair Shop No. 304, is located between Fort Sam Houston and Camp Travis, and is in charge of Major Mark Ireland. The new repair depot will be one of three, the other two being at Atlanta, Ga. and Baltimore. The Atlanta shops are nearing completion at this time. The machine tool requirements of these undertakings will be large.

Priority Certificates Demanded in Chicago

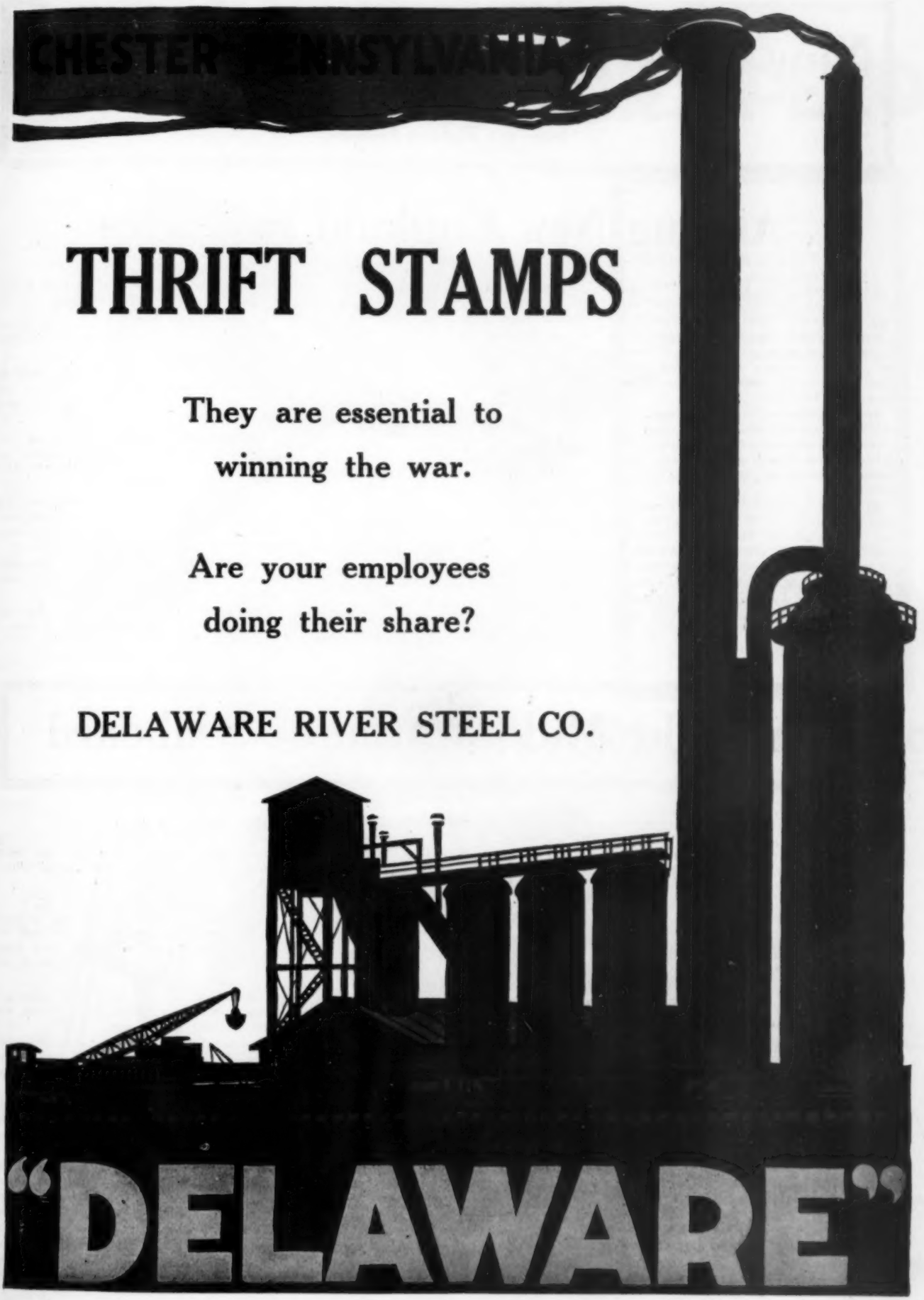
DEMAND for machine tools continues strong in the Chicago district, mostly from buyers of one or a few tools rather than in large lists. Increasing difficulties are being met in placing orders on account of restrictions placed on raw material and sellers find themselves forced to exact priority certificates from all buyers in order to have the orders properly booked. Manufacturers find they are forced to show that their product is to be used for war purposes before they can place orders for castings to go into the machines. Railroads are quiet and among the several lists which have been pending for the past few weeks comparatively little buying has resulted. Shipbuilding interests are taking considerable heavy equipment including boring mills, lathes, milling machines and slotters. The McDougal-Duluth Corp., Riverside, Duluth, Minn., has been in the market recently for this class of machines. Announcement is made by the Chicago Association of Commerce that a shell-making plant to cost $6,500,000 is to be built in Chicago to produce heavy shells for the United States ordnance department. This should call for a large quantity of heavy equipment. It is understood also that a large plant to manufacture gun mounts is likely to be established here and inquiries have been made already as to the possibility of obtaining equipment. The Electric Steel Co., Chicago, has let a contract for its foundry addition. Armour & Co. has let a contract for a machine shop at the Union Stock Yards. The General Motors Co. will build a drop forge shop at its Detroit plant. The Lapeer Tractor Truck Co., Lapeer, Mich., will build a tractor manufacturing plant. The Pressed Steel Tank Co., West Allis, Wis., will build several additions. The Oliver Chilled Plow Co., South Bend, Ind., will build an addition to its forge shop. The Washburn-Crosby Co., Minneapolis, Minn., will build a machine shop addition. The Pacific Electric Railway Co., Los Angeles, has let a contract for numerous shops, including a machine shop and forge shop.

Pittsburgh Anticipates Need for Heavy Machines

DEMAND for machinery and machine tools coming into the Pittsburgh district is principally for government requirements. The Neville island ordnance plant will call for great quantities of equipment and considerable difficulty promises to be met in getting the large forging presses and lathes. Makers of the former are limited in number and perhaps are confined to the Bethlehem Steel Co., South Bethlehem, Pa., the Midvale Steel & Ordnance Co., Philadelphia, the United Engineering & Foundry Co., Pittsburgh, and the Mesta Machine Co., Pittsburgh. A plant will be built at Landisville, Pa., by the Kennedy Refractories Co., Union Arcade building, Pittsburgh, which has plants at Barntridge, Pa., and Bettsville, O., producing a basic lining for open hearth and crucible steel furnaces. Expansion of plants in the Pittsburgh district does not involve any big undertakings. The Pittsburgh Crucible Steel Co. has just authorized construction of its second blast furnace at Midland, Pa.

Large Lists Remain Open in Cleveland

SEVERAL large lists and a continued call for duplicate machines from firms engaged in war work is providing an active market in the Cleveland district. Pressure to induce increased production is bringing into the market, manufacturers whose shop equipment was deemed adequate to handle the contracts allotted at the time they were placed. No business has been closed on the lists of the New York Central and the Lake Erie and Western published in detail in last week's THE IRON TRADE REVIEW. A wider distribution of this business is expected among the machine tool dealers than has been the custom in the past, as the specifications have been given to a greater number of dealers. The Grant Motor Car Co. is still negotiating on a large list of requirements for the new plant at Findlay, O. It is stated that the entire amount of the machine tool requirements for this plant will reach $750,000. The Templars Motor Corp., Cleveland, is expected to issue a list of shell making tools at some time during the coming week. It is understood that this equipment will be supplementary to its present facilities. The Electric Steel & Forge Co., Cleveland, which recently has taken over the holdings of the Crucible Steel Co., plans to erect two new buildings. One of these will house a complete rolling mill, for which machinery will be needed, and the other will be for warehouse purposes. The Cleveland Armature Works, Inc., will build a factory addition. The National Screw and Tack Co. will construct a 7-story addition to cost $120,000. Arthur G. McKee & Co., Rockefeller building, Cleveland, are inquiring for a boring mill, a converter blower and a No. 3 or No. 4 press. The Firestone Steel Products Co., Akron, O., is inquiring for a 72-inch boring mill. The allotment of large contracts for trucks is expected to bring considerable tool inquiry from Detroit,



THRIFT STAMPS

They are essential to
winning the war.

Are your employees
doing their share?

DELAWARE RIVER STEEL CO.

"DELAWARE"

Say you saw it in THE IRON TRADE REVIEW

New Construction and Equipment

Concise and Timely Business Building Opportunities from the Field of Industry

Among New England Factories

BATH, ME.—The Kelly-Spear Co. plans to reconstruct its shipbuilding yard at a cost of $30,000.

BIDDLEFORD, ME. — The Saco Lowell Co. has awarded the contract for a 5-story, 25 x 65-foot machine shop addition to the Glynt Building & Construction Co., Palmer, Mass.

BURLINGTON, VT.—The Vermont Mill Chocolate Co. will build a brick, mill construction, fireproof, 1, 2, and 3-story, 150 x 163-foot factory and a 51 x 42-foot boiler house to replace its plant recently damaged by fire.

BOSTON.—A. J. Tower has awarded the general contract to W. A. & H. A. Root for construction of two factory buildings. The proposed structures will be five stories, 42 x 213, and 64 x 133 feet, respectively.

HOLYOKE, MASS.—The Walsh's Holyoke Steam Boiler Works has let the contract for a brick, mill construction, 3-story, 30 x 70-foot office building and garage, to cost $30,000.

IPSWICH, MASS.—The Ipswich Mills has let the contract for a brick, 2-story, 100 x 100-foot storehouse. Lockwood, Greene & Co., Boston, are the engineers.

PEABODY, MASS.—The A. C. Lawrence Leather Co. will build a 7-story, 72 x 88-foot addition to its administration building.

SPRINGFIELD, MASS. — The Bemis & Call Hardware & Tool Co. will build a brick and steel, fireproof, 1-story, 34 x 60 foot factory.

WORCESTER, MASS.—The Liberty Screw Co. has let the contract for a brick, 1-story, 60 x 150-foot factory.

CENTRAL FALLS, R. I.—Salembier & Clay have let the contract for a brick, mill construction, 1-story, 40 x 100-foot addition to the weave shed of the Fortuna Silk Mill.

PROVIDENCE, R. I. — The American Emery Wheel Works has let the contract for a 1-story, 38 x 85-foot addition to its plant.

PAWTUCKET, R. I.—A $175,000 extension will be made to the plant of D. Goff & Son by the Cruise & Smiley Construction Co.

SOUTH KINGSTON, R. I.—The Rocky Brook Mills Co. will build a $50,000 mill extension, 1-story, 46 x 116 feet.

BRIDGEPORT, CONN.—Harvey Hubbell, Inc., has let the contract for a brick and steel, fireproof, 2-story and basement, 60 x 120-foot addition to its factory.

BRIDGEPORT, CONN.—The general contract for a 2-story, 40 x 70-foot foundry, has been awarded by the Bullard Machine Tool Co. to John R. Sheehan.

STAMFORD, CONN.—The Stamford Gas & Electric Co. has awarded the general contract for a pump and valve house, costing $10,000, to the Guono Construction Co.

WATERBURY, CONN. — The American Brass Co. is building a 1-story, 30 x 137-foot addition.

WATERBURY, CONN. — The American Mills Co. has let the contract for a 1-story, 60 x 90-foot addition.

Along the Middle Atlantic Seaboard

BALLSTON SPA, N. Y.—A 3-story, 52 x 130-foot knitting mill will be erected here by F. J. Schutts & Co., Amsterdam, New York. The Strever Construction Co., Ballston Spa, will be in charge.

BLACK RIVER, N. Y.—A $500,000 power development will be undertaken at this place by the Northern New York Utilities Co., Watertown, N. Y.

BROADALBIN, N. Y. — The Broadalbin Knitting Co. is drawing plans for $50,000 mill extension, three stories, 62 x 92 feet.

BROOKLYN, N. Y.—Plans have been revised for a $20,000 plant addition for the Decorative Metals Co., 196 Degraw street.

BROOKLYN, N. Y.—The Kimble Realty Co., 1042 Dean street, is drawing plans for a $20,000, three and five-story factory addition.

BROOKLYN, N. Y.—The Atlantic Basin Iron Works, Imlay and Van Brunt street, has awarded the general contract for a $25,000 warehouse addition to William F. Henry, 316 Flatbush avenue.

BUFFALO.—Cousins & Son are receiving bids on a $25,000 boiler shop.

BUFFALO.—Liberty Aircraft Corp., Tonawanda, N. Y., will build a branch plant here.

BUFFALO.—Donner Steel Co., 475 Abbot road, will build a blowing mill.

BUFFALO.—M. J. McNiven, this city, will build a machine shop at Niagara street and Burd avenue.

BUFFALO.—Stewart Motor Corp., 9 Randall street, is arranging to build an addition 90 x 100 feet.

BUFFALO.—The Buffalo General Electric Co. is having plans drawn for a $17,000 addition to a substation. The proposed structure will be 1-story, 95 x 106 feet.

DEPEW, N. Y.—The Gould Storage Battery Co. contemplates the erection of 2-story, 75 x 90-foot factory extension.

DUNKIRK, N. Y.—The American Locomotive Co. is receiving bids for 1-story, 85 x 120-foot addition to its plant.

FAIRPORT, N. Y.—A power plant will be erected by the Douglas Packing Co. A. S. Crocker, Rochester, N. Y., is engineer in charge.

FAYETTEVILLE, N. Y.—The Precision Dye Castings Co. will erect a $5,000, 1-story, 60 x 90-foot plant extension. The Central City Construction Co., Syracuse, N. Y., has the general contract.

GENEVA, N. Y.—A $50,000 plant extension is being planned by the United States Lens Co., of which A. T. Wilson is president.

JAMESTOWN, N. Y.—The Art Metal Construction Co. will make an extension to its boiler shop. F. A. Shoemaker, Buffalo, will be engineer in charge.

LONG ISLAND CITY, L. I., N. Y.—The Neurer Steel Barrow Co. will start work shortly on an addition and several alterations to its plant.

LONG ISLAND CITY, L. I., N. Y.—A 1-story, 75 x 100-foot machine shop will be erected by Frank J. Clancy, and will be leased to the Pressed & Welders Steel Products Co., 66 Myrtle avenue, Flushing, L. I., N. Y.

PHOENIX, N. Y.—Preliminary plans are being drawn for a 3-story, 50 x 200-foot silk mill for John Dunlop Sons.

ROCHESTER, N. Y.—Architects Hutchison & Strutz are receiving bids for a 50 x 100-foot warehouse for the Monroe Iron Metal & Cooperage Co.

SCHENECTADY, N. Y.—Bids on a 1-story, 120 x 175-foot boiler shop addition are being received by the American Locomotive Company.

SHOOTER'S ISLAND, L. I., N. Y.—The Staten Island Shipbuilding Corp., 44 Whitehall street, New York, will erect a compressing building, 1-story, 40 x 184 feet, at this place.

WARSAW, N. Y.—The Warsaw Elevator Co., C. E. Ketchum, president, will erect an addition to its power plant.

THE NATION IS COUNTING ON SPEED

—Speed in the air, on the land, and on the sea—on the battlefields of France, in the munition factories of our great cities—and on the vast agricultural fields of the country. Everywhere we must have SPEED—and then MORE SPEED.

And wherever extra speed is applied, there will be an unusual strain or exertion which must be met. Ordinary machines will not do—we are at war—we must have machines that will be able to keep up the pace set by the wheels of war.

TODAY—whether you are building airplanes, motor trucks or farm tractors, you must have castings of exceptional quality—you must have castings built to meet SPEED STRAINS.

SPECIFY OHIO STEEL CASTINGS and YOU WILL NOT BE DISAPPOINTED.

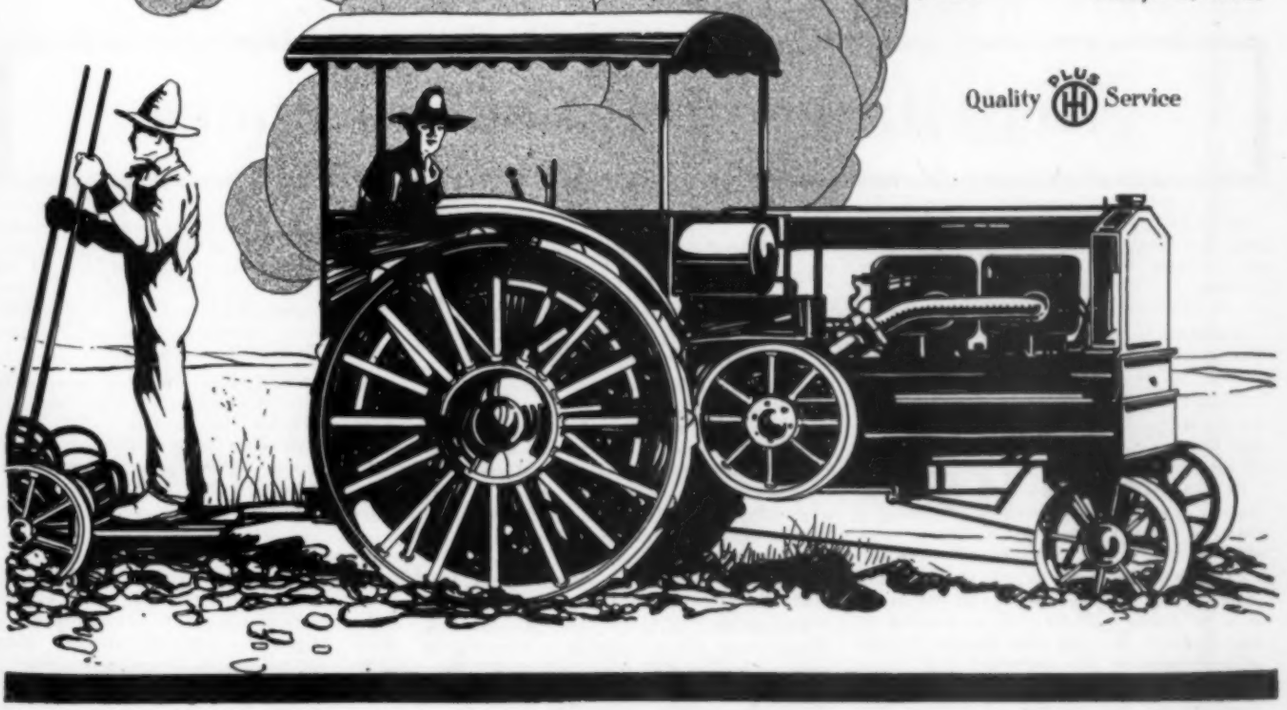
Let us figure on your requirements.

The Ohio Steel Foundry Co.

PLANTS

Springfield, Ohio Lima, Ohio Bucyrus, Ohio.

Quality PLUS (H) Service



ALLENTOWN, PA. — The Aldrich Pump Co. will receive bids shortly on a $6000 addition to its foundry.

AVONMORE, PA.—The National Roll & Foundry Co. is building an 80-foot addition to its foundry and is installing its third air furnace.

BETHLEHEM, PA.—The Bethlehem Steel Co. is now receiving bids on a $6000 blower house.

HILLSVILLE, PA.—Carbon Lime Stone Co., this place will make extensive improvements to its plant at once.

LENNI, PA.—The Lenni Steel Co. contemplates the erection of a foundry in this city. C. W. Jenkins, 130 South Fifteenth street, Philadelphia, will be in charge of construction.

NEW BRIGHTON, PA.—Pittsburgh Tool Steel Wire Works has let the contract to Micklin Bros., Rochester, Pa., for an addition to its plant here, to cost $11,000.

NEW CASTLE, PA.—The Pennsylvania Engineering Co. has the contract for fabricating steel for rebuilding a blast furnace at the Farrell works of the Carnegie Steel Co.

OAKDALE, PA. — Aetna Chemical Co., this place, whose plant blew up recently, is arranging to build another plant somewhere in the Pittsburgh district. Address Benjamin B. Odell Jr., care the company.

PHILADELPHIA. — A $40,000 warehouse addition will be erected by the Schuylkill Warehouse Co. Peuckert & Wunder are drawing plans.

POTTSTOWN, PA.—The Industrial Foundry & Machine Co. is erecting an addition to its plant, which includes a machine shop, 90 x 140 feet, metal house and pattern works.

READING, PA.—Work has been started on a $30,000 enameling shop for the International Money Machine Co.

SHARPSVILLE, PA.—Yankee Steel Co., of America will have a plant built at Truxall city, near here, under direction of Ephrian Truxall, 1014 Union bank building, Pittsburgh, who is president of the company.

VANDERGRIFT, PA.—Phillips Bros., this place, will build a commercial garage and machine shop on the site of the Hunger building.

CONSTABLE HOOK, N. J.—A $130,000 coaling plant will be erected here by the bureau of yards and docks for the navy department. The bureau of yards and docks, Washington, is in charge.

ELIZABETH, N. J. — Plans have been completed by the Singer Mfg. Co. for construction of a $500,000 addition to its plant. The new addition will be 265 x 600 feet, of brick and steel, three stories.

JERSEY CITY, N. J.—Preliminary plans are being drawn by the Terminal Transit Co. for a shipbuilding plant in this city, comprising four ways. J. T. O'Connor, 1 Broadway, New York, is manager of the Terminal Company.

NEWARK, N. J.—Pierce Mfg. Co. will erect a factory for manufacture of boilers and plumbing fixtures.

NEWARK, N. J. — Ballinger & Perrot, Philadelphia, is drawing plans for a $25,000 plant addition. Name of the owner is withheld.

NEWARK, N. J.—The Butterworth-Judson Corp., 61 Broadway, New York, has filed plans for a 1-story, 42 x 52-foot addition to its plant in this city.

NEWARK, N. J.—The Newark Wire Cloth Mfg. Co. contemplates construction of a two or three-story factory building, 40 x 60 feet.

NEWARK, N. J.—Plans have been completed by the Hays Foundry & Iron Works for a 1-story, 50 x 250-foot addition. The construction will be done by the American Concrete Steel Co.

RIDGEFIELD, PARK, N. J.—The British American Chemical Co. contemplates the erection of a 1-story addition to its plant at this place. L. G. McNab, 42 Vanderbilt avenue, New York, is secretary.

BRUNSWICK, MD. — The Baltimore & Ohio railroad has awarded the general contract for $100,000 round house to Frannie Bros. & Haigley.

FREDERICKSBURG, VA.—A 2-story, 64 x 100-foot boiler and engine shop will be erected by the State normal school. E. G. Heeflin has been awarded the general contract.

Government Inquiries

Bids on the following equipment are desired by the navy department bureau of supplies and accounts.

Machine tools, including boring machines, duplex and profiling machines, 1843, no date, Washington.

Electric welding outfits, 4633½, June 18, Washington.

Four boring machines, 4636½, June 17, Washington.

Two grinding and shaping machines, 4638½, June 17, Washington.

Five toolmakers lathes, 4639½, June 17, Washington.

Two precision lathes, 4641½, June 17, Washington.

Eleven engine lathes, 4644½, June 18, Washington.

One radial drill, 4645½, June 18, Washington.

Shaping machine, 4646½, June 18, Washington.

One planer, 4649½, June 18, Washington.

One planing machine, 4650½, June 18, Washington.

One surface grinding machine, 4651½, June 18, Washington.

One jig boring machine, 4652½, June 18, Washington.

One grinding machine, 4653½, June 18, Washington.

One radial drill, 4655½, June 18, Washington.

Three grinding machines and drop press machine, 4657½, June 17, Washington.

Schedule numbers, dates of opening and places of delivery follow the specifications of the tools.

Activities in the Central States

ASHLAND, WIS.—P. V. Rundlett, Ashland, has taken the contract for the erection of a 2-story brick and concrete warehouse building, 50 x 120 feet, for the Ashland plant of the Charcoal Iron Co. of America.

BARABOO, WIS.—The Prothero & McGinnis Auto Co. will build a 1-story brick addition to its machine shop and garage.

BELOIT, WIS.—Fairbanks-Morse & Co., C. H. Morse Jr., president, 900 South Wabash avenue, Chicago, is planning a foundry to cost $300,000.

BURLINGTON, WIS.—The C. E. Reed garage and machine shop on Washington street is being enlarged by a 1-story brick addition, 31 x 92 feet. Matt Rewald is general

CHIPPEWA FALLS, WIS.—The Chippewa county board has appropriated $12,000 as its share of one-half of the cost of building 13 reinforced concrete and steel highway bridges in five townships this summer.

CLINTONVILLE, WIS. — The general contract for the erection of a new high school in this city has been awarded to the Hegner Construction Co., Appleton, Wis.

CUDAHY, WIS.—The Ladish Drop Forge Co. will build a boiler house, 50 x 60 feet, under direction of Klug & Smith, consulting engineers, Mack block, Milwaukee. The cost is estimated at $20,000, including new boilers.

EAU CLAIRE, WIS.—The common council has decided to engage an engineer to prepare plans and estimates of a new steel and reinforced concrete viaduct, to consist of four 210-foot spans and two 35-foot approaches.

KENOSHA, WIS. — The Pittsburgh-Des Moines Steel Co., Pittsburgh, has taken the contract to furnish and erect a steel water tank, mounted on a steel tower, for the Willowbrook Sanatorium, Kenosha, at $4750.

KENOSHA, WIS. — The Macomber & Whyte Rope Co. is building a 1-story brick and steel storage building, 60 x 200 feet. The work has been let to the Wisconsin Bridge & Iron Co., Milwaukee.

MADISON, WIS.—The board of regents of the University of Wisconsin has awarded the general contract for the erection of the new $125,000 Cornelius Bradley Memorial Hospital and Infirmary to Dahl-Stedman, 1011 Lumber exchange, Chicago. Arthur Peabody is university architect.

MARINETTE, WIS.—Bids are being taken by Architect Derrick Hubert, Spies building, Menominee, for the erection of a 2-story brick and concrete factory addition, 30 x 130 feet, for the Aerial Cutlery Co. C. F. Jaeger is manager.

MENASHA, WIS.—A $75,000 plant for manufacture of wire looms and wire cloth will be erected in Menasha by a company organized by John M. Graef. Plans call for two buildings, 110 x 150 feet, and 42 x 150 feet, 1-story, of reinforced concrete, steel and brick. Contracts will be awarded about June 1.

MIDDLETON, WIS.—Architects Law & Law, Madison, Wis., are preparing plans for

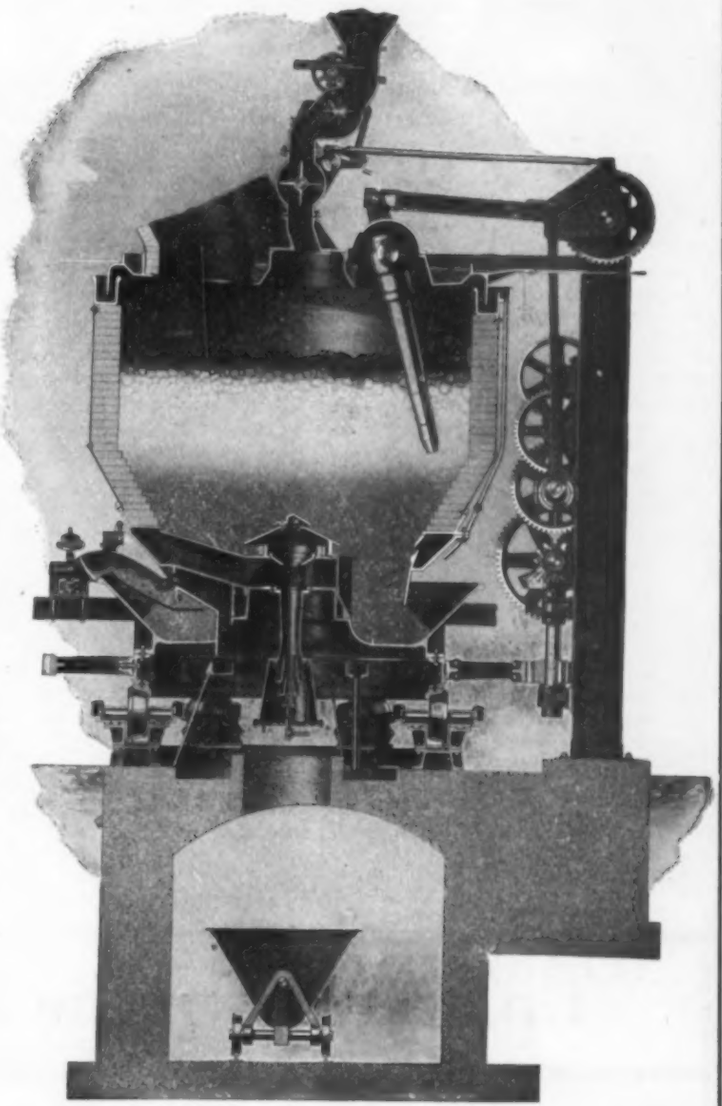
The Hughes Mechanical Gas Producer

REPEAT ORDERS
Indicate Satisfaction

A partial list of repeat customers showing number of Hughes Producers used by each.

Carnegie Steel Co.	119
American Steel & Wire Co.	56
Bethlehem Steel Co.	54
New Jersey Zinc Co.	42
National Tube Co.	41
Jones & Laughlin Steel Co.	40
Lackawanna Steel Co.	39
Indiana Steel Co.	38
Inland Steel Co.	36
Minnesota Steel Co.	36
Pittsburgh Steel Co.	36
American Sheet & Tin Plate Co.	32
Republic Iron & Steel Co.	32
American Rolling Mill Co.	30
Corrigan, McKinney & Co.	30

More than 1000 in use



Write for Bulletin A-4

Bulletin A-4 contains considerable information on the subject of producer gas and explains the Hughes Uniform Feed, Water Cooled Poker, Blowing, Mixing and other special features which contribute to its splendid performance. A copy is waiting your request.

THE WELLMAN-SEAVER-MORGAN CO.

CLEVELAND, OHIO, U. S. A.

a 2-story brick and concrete high school building, 60 x 110 feet, costing $50,000.

MILWAUKEE.—The Cutler-Hammer Mfg. Co. is starting work on a foundry, 50 x 75 feet. The steel work has been let to the Worden-Allen Co., Milwaukee.

MILWAUKEE.—A 1-story reinforced concrete addition, 60 x 110 feet, will be erected by the Richardson-Phenix Co., Reservoir avenue and Hubbard street.

MILWAUKEE.—The Cream City Casket Co. awarded the general contract for a 3-story addition, 40 x 94 feet, costing $22,000, to Marggraff Bros., 2303 Cold Spring avenue. Leiser & Holst, architects.

MILWAUKEE.—The Crucible Steel Casting Co. has awarded contracts for the erection of a solid brick foundry addition at its plant at 612 Clinton street. The work will cost about $10,000.

MILWAUKEE.—Architects E. Brielmaier & Sons, 428 Broadway, Milwaukee, are ready for bids for erection of a 4-story brick and reinforced concrete hospital building and power plant for the Sisters of Mercy at Muskegon, Mich.

MILWAUKEE.—The Pressed Steel Tank Co. has awarded the general contract for designing and constructing a 1-story brick and steel galvanizing shop, costing about $12,000, to Kulg & Smith, consulting engineers, Mack block, Milwaukee.

MILWAUKEE.—The Milwaukee Pattern & Mfg. Co., Thirtieth and Locust streets, Milwaukee, will award contracts at once for construction of a 2-story pattern shop and storage addition, 58 x 74 feet, and will install new machinery and equipment. F. A. Drolshagen is manager.

NEW LONDON, WIS.—The common council awarded a contract to Victor Thomas to erect a 2-story addition, 28 x 50 and 32 x 28 feet, to the municipal light, power and waterworks pumping plant.

OCONTO, WIS.—The Oconto Service Co. has engaged Mead & Seastone, hydraulic engineers, 530 State street, Milwaukee, to prepare plans for a new concrete dam and improvements to its hydro-electric plant on the Peshtigo river.

RACINE, WIS.—The Hamilton-Beach Mfg. Co. is taking bids through Architect A. L. Flegel for erection of a 3-story factory and warehouse addition, 80 x 150 feet, which with equipment will cost about $45,000.

SHEBOYGAN, WIS.—A new contral exchange and administration building costing about $65,000 will be erected by the Citizens Telephone exchange.

SHEBOYGAN, WIS.—The Jenkins Machine Co. contemplates erection of a 2-story addition to its plant soon. The new structure will be fireproof, and equipped with modern machinery. The building will have a complete cupola elevator, and cleaning and core room equipment. A. G. Stuedeman is president.

SOUTH MILWAUKEE, WIS.—Emil Beetinger will build a new public garage and machine shop, 45 x 120 feet. It will cost $15,000.

STURGEON BAY, WIS.—The board of public utilities will build a pumping station and extend the waterworks system.

SUPERIOR, WIS.—The Globe Shipbuilding Co., B. C. Cook, president, is preparing plans for a 1-story machine shop 80 x 100 feet.

TURTLE LAKE, WIS.—Architect W. L. Alban, Endicott building, St. Paul, is preparing plans for a new high school building, costing about $45,000.

WAUWATOSA, WIS.—The asbestos mill operated here by the H. W. Johns-Manville Co., Second and Clybourn streets, Milwaukee, is being enlarged by the erection of a one-story addition, 60 x 140 feet.

WEST ALLIS, WIS.—The Universal Machinery Co., E. C. Devin, president, 784 Thirtieth street, will build a plant costing $250,000.

WEST ALLIS, WIS.—The Pressed Steel Tank Co., R. H. Hackney, president, contemplates building a 1-story addition to its finishing building and additions to its galvanizing shop, to $35,000.

WEST ALLIS, WIS.—The F. A. Gardner Machine Works, Seventy-fifth and National avenues, recently purchased by Menningsen & Karth, will be enlarged by the erection of a two-story brick addition, 50 x 85 feet.

DETROIT.—The Burroughs Adding Machine Co. is having plans prepared for a 5-story plant, 66 x 472 feet, costing $750,000.

DETROIT.—The Douglas & Lamoson Machine Co. will build a 4-story addition, 76 x 80 feet, to cost $20,000.

GRAND RAPIDS, MICH.—The Accounting Machine Co. is erecting a 2-story brick, 50 x 175-foot factory building. Contracts for most of the equipment have been let. John J. Harris is president and general manager.

PONTIAC, MICH.—The Wilson Foundry & Machine Co., C. B. Wilson, general manager, will build a 1-story machine shop addition, 41 x 169 feet.

SAGINAW, MICH.—The General Motors Co. is having plans prepared for a gray iron foundry. W. B. Durant, Flint, Mich., is president.

CHICAGO.—The Henry Lindahl Machine Co., 954 West Lake street, will build a 3-story machine shop, 50 x 50 feet, to cost $18,000.

CHICAGO.—William H. Vallas, 2855 West Lake street, will build a sheet metal shop on Sacramento avenue near West Lake street, to cost $20,000.

JACKSONVILLE, ILL.—The Jacksonville Reduction Co. will make extensive improvements at its plant.

LAKE FOREST, ILL.—Lake Forest will build an addition to its waterworks plant, 50 x 180 feet, and a chemical building, 33 x 48 feet, to cost $175,000.

CONNERSVILLE, IND. — The Indiana Lamp Co., F. M. Ansted, manager, will build a 1-story addition, 120 x 1000 feet, to cost $50,000.

CINCINNATI.—The General Briquetting Co., Chicago, has leased a building from the M. B. Farrin Lumber Co., and is installing machinery to make briquettes from cast borings.

Up and Down the Pacific Coast

PORTLAND, OREG.—The Pacific Marine Iron Works, East Main and Water streets will erect a dock, to cost $47,000, at Belmont and East Water streets.

CHOWCHILLE, CAL.—George R. Perry has let a contract for a 1-story machine shop, 50 x 100 feet, equipped with grinders and machinery to handle automobile and tractor construction and repairs.

HAMILTON CITY, CAL.—John Berlinger has secured the contract for the erection of a grain elevator for Andrew Kaiser, to cost $25,000.

LOS ANGELES.—C. J. Kuback Co., Merchants National bank building, has secured the contract for erection of a 5-story building for S. W. and H. E. Bixby.

OAKLAND, CAL. — The Hanlon Drydock & Shipbuilding Co. has undertaken on its own account, erection of a restaurant to cost $5000; machine shop, $10,000; blacksmith shop, $3500; office addition, $2500; hospital $1200, and wharf, $30,000.

RICHMOND, CAL.—The Pacific Oil & Lead Co. is starting work on its plant on the deep water frontage on the Richmond Belt railway.

SAN FRANCISCO.—The Engineer Office, U. S. A., 405 Customs House, is asking for bids for steel rails and accessories.

SAN FRANCISCO. — The Pacific Coast Boiler Works, 235 Main street, was recently damaged by fire with a loss of $15,000 to the buildings and an undetermined damage to machinery and equipment.

SAN FRANCISCO. — The Emergency Transportation Co., Oakland, Cal., has been granted permission by the state railroad commission to build an 8-block single track line on Chestnut street.

SAN FRANCISCO.—The Spencer Kellogg & Sons Linseed Oil Co., Monadnock building, has obtained property in Oakland, Cal., upon which erection of a large plant is planned.

SAN FRANCISCO.—The Lindgren Co., Monadnock building, has secured the contract for the construction of several brick and steel buildings for the California-Hawaiian Sugar Co. at Crockett, Cal. Estimated cost is $200,000.

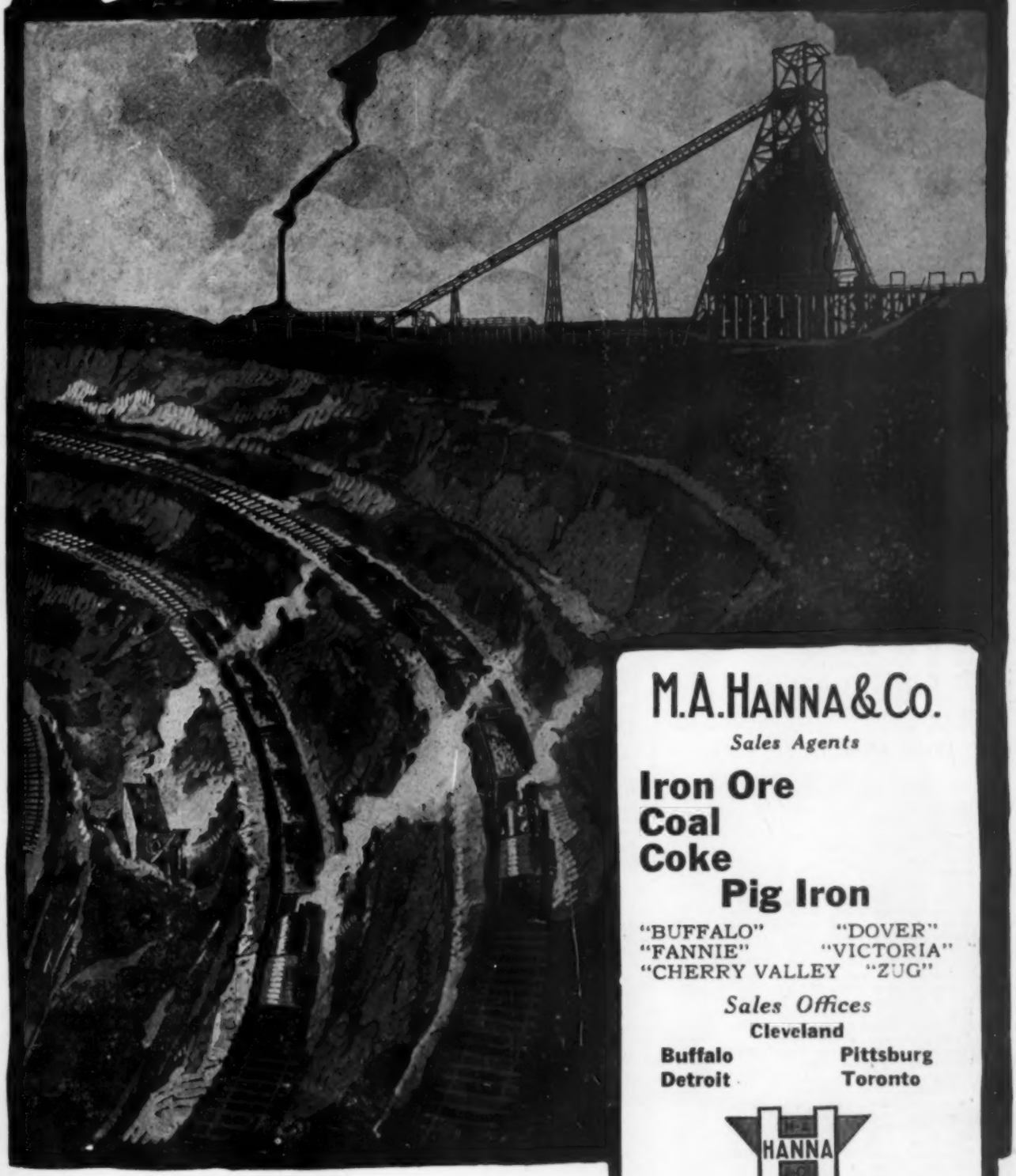
SAN FRANCISCO.—The Union Construction Co., 604 Mission street, is taking figures for the construction of a 1-story, mill constructed or steel frame plate shop, 90 x 380 feet. R. S. Henningsen, Security Bank building, Oakland, Cal., is the engineer.

SAN FRANCISCO. — Under an understanding reached between the city authorities and representatives of the Emergency Fleet corporation, the government is to supply the necessary money and materials and pay for the building of an extension of the municipal street railway to the shipbuilding yards at Hunters Point, the city agreeing to take it over at the conclusion of the war.

SAN PEDRO, CAL.—F. W. Colegrove, 573 Seventh street, secured the contract for the erection of a corrugated-iron cannery building for the Seacoast Canning Co.

SANTA ANA, CAL.—Bond issues of $38,500 for construction of Main street bridge and $7700 for construction of Flower street bridge have been voted.

HANNA



M.A. HANNA & CO.

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Coal
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"FANNIE" "VICTORIA"
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Buffalo **Pittsburg**
Detroit **Toronto**

HANNA

Say you saw it in THE IRON TRADE REVIEW

Iron and Steel Prices

Corrected to Tuesday Noon

IRON ORE

Superior Ores, Per Ton, Lower Lake Ports	
Old range Bessemer, 55 iron	$5.95
Mesabi Bessemer, 55 iron	5.70
Old range non-Bess., 51½ iron	5.20
Mesabi non-Bess., 51½ iron	5.05

WAREHOUSE PRICES

Steel bars, Chicago	4.10c
Steel bars, Cleveland	4.035c
Steel bars, Detroit	4.085c
Steel bars, Philadelphia	4.10c
Steel bars, New York	4.095c
Steel bars, St. Louis	4.17c
Steel bars, Cincinnati	4.085c
Steel bars, St. Paul	4.22c
Steel bars, Buffalo	4.05c
Iron bars, Buffalo	4.65c
Iron bars, Chicago	4.10c
Iron bars, Cleveland	3.985c
Iron bars, Detroit	4.75c
Iron bars, St. Louis	4.17c
Iron bars, Cincinnati	4.085c
Iron bars, Philadelphia	4.50c
Iron bars, New York	4.659c
Shapes, Chicago	4.20c
Shapes, Detroit	4.185c
Shapes, St. Louis	4.27c
Shapes, St. Paul	4.32c
Shapes, New York	4.195c
Shapes, Cleveland	4.135c
Shapes, Philadelphia	4.20c
Shapes, Buffalo	4.15c
Shapes, Cincinnati	4.185c
Plates, Buffalo	4.40c
Plates, Chicago	4.45c
Plates, Detroit	4.435c
Plates, St. Louis	4.52c
Plates, St. Paul	4.57c
Plates, New York	4.445c
Plates, Cleveland	4.385c
Plates, Philadelphia	4.45c
Plates, Cincinnati	4.435c
No. 10 blue anl. sheets, Chi.	5.45c
No. 10 blue anl. sheets, C'eve.	5.385c
No. 10 blue anl., Buffalo	5.40c
No. 10 blue anl., sheets, St. L.	5.52c
No. 10 blue anl. sheets, Cinci.	5.435c
No. 10 blue anl. sheets, St. Paul	5.57c
No. 10 blue anl. sh., Detroit	5.435c
No. 28 black sheets, Chgo.	6.45c
No. 28 black sheets, Cleve.	6.385c
No. 28 black sheets, Cinci.	5.45c
No. 28 black, Detroit	6.435c
No. 28 black sheets, St. L.	6.52c
No. 28 black sheets, St. Paul	6.57c
No. 28 galv. sheets, Chgo.	7.70c
No. 28 galv. sheets, Cleve.	7.635c
No. 28 galv. sheets, Cinci.	6.635c
No. 28 galvanized, Detroit	7.685c
No. 28 galv. sheets, St. L.	7.77c
Hoops, Cleveland	4.885c
Hoops, Detroit	4.935c

IRON AND STEEL SCRAP

(Prices in Gross Tons)

STEEL WORKS USE

Bundled sheets, Cincinnati	$22.50 to 23.00
Bundled sheets, Pittsburgh	22.00
Bundled sheets, Cleveland	23.50 to 24.25
Bundled sheets, Buffalo	24.00 to 25.00
Boiler plate, cut, No. 1, Chg.	24.50 to 25.50
Boiler plate, cut No. 1, St. L.	25.50 to 26.00
Frogs, switches, guards, St. L.	28.50 to 29.00
Frogs, switches, guards, Chgo.	29.00
Heavy melting steel, Pitts.	29.00
Heavy melting steel, Buffalo	30.00
Heavy melting steel, Chgo.	29.00
Heavy melt'g steel, Cleveland	29.00
Heavy melting steel, Cinci.	27.50 to 28.00
Heavy melt'g steel, east. Pa.	28.00 to 29.00
Heavy melting steel, N. Y.	26.75
Heavy melting steel, St. L.	27.50 to 28.00
Heavy melt'g steel, Birming.	23.00 to 24.50
Hydraulic press. sheets, Cleve.	28.50 to 29.00
Hydraulic press. sheets, Pitts.	26.00
Hydraulic press. sheets, Chgo.	26.00 to 26.50
Knuckles, couplers, Chgo.	34.00
Knuckles, coup., St. Louis	32.50 to 33.00
Low phos. steel, Buffalo	37.50
Low phos. steel, Pittsburgh	39.00
Low phos. crops eastern Pa.	39.00
Low phos. guaranteed E. Pa.	36.50
Shoveling steel, Chicago	29.00
Shoveling steel, St. Louis	26.50 to 27.00
Springs, Chgo.	34.00
Steel rails, short, Chicago	34.00
Steel rails, short, Cleveland	34.00
Steel rails, short, St. Louis	30.75 to 31.25
Steel rails, old, Birmingham	24.00 to 24.50
Stove plate, Chgo.	25.50 to 26.50
Stove plate, Cincinnati	20.50 to 21.00
Stove plate, St. Louis	22.50 to 23.00
Stove plate, N. J. points	24.75
Stove plate, Birmingham	20.00 to 21.50
Stove plate, Buffalo	24.00 to 25.00
Stove plate, eastern Pa.	24.00 to 25.00
Stove plate, Cleveland	25.00 to 25.50
Stove plate, Pittsburgh	22.00

Freight Rates, Pig Iron

Mahoning and Shenango valleys to:	
Cleveland	$1.10
Newark, N. J.	3.50
Boston	3.70
Philadelphia	3.30
Pittsburgh	1.10
St. Louis	3.70
Minneapolis, St. Paul	4.54
Buffalo to:	
Albany, N. Y.	$1.40
New England (rail)	3.10
New York and Brooklyn (rail)	3.10
Virginia furnaces to:	
Philadelphia	$3.27
New England	3.77
Brooklyn, Jersey City, Newark	3.52
Birmingham, Ala., to:	
Boston	6.00
Cincinnati	2.90
Chicago	4.00
Cleveland	4.00
Louisville, Ky.	2.65
Minneapolis, St. Paul	5.85
New York (r. and w.)	6.00
Philadelphia (r. and w.)	5.25
Pittsburgh	4.90
Savannah, Ga.	2.75
St. Louis	3.40
Chicago to:	
Des Moines	$2.80
Minneapolis, St. Paul	2.00
Milwaukee	.50
Moline, Ill.	1.15
Omaha	3.58
St. Louis	1.58
Ironton and Jackson, O., to:	
Chicago	$3.00
Cincinnati	1.40
Cleveland	1.90
Detroit	2.10
Indianapolis	1.80
Minneapolis, St. Paul	4.54
Duluth, Minn., to:	
Minneapolis, St. Paul	$1.25
Mayville, Wis.:	
Minneapolis-St. Paul	$1.75

Freight Rates, Finished Material

Pittsburgh, carloads, per 100 lbs., to:	
New York	19.5 cents
Philadelphia	18.5 cents
Boston	21.5 cents
Buffalo	17.0 cents
Baltimore	18.0 cents
Cleveland	13.5 cents
Cincinnati	18.5 cents
Chicago	21.5 cents
Detroit	18.5 cents
Minneapolis and St. Paul	39.5 cents
Denver	82.5 cents
St. Louis	27.0 cents
New Orleans	30.7 cents
Birmingham	45.0 cents
Pacific coast (all rail)	$1.00
Pacific coast (tin plate)	1.00

IRON MILL USE

Angle bars, iron, Chgo.	39.00
Angle bars, steel, St. Louis	30.50 to 30.50
Angle splice bars, St. Louis (iron)	37.50 to 38.00
Arch bars, transoms, Chgo.	44.00 to 45.00
Arch bars and transoms, St. Louis	45.00 to 45.50
Busheling, No. 1, Cleveland	29.00 to 30.00
Busheling, No. 1, Buffalo	29.00 to 30.00
Busheling, No. 2, Buffalo	21.00 to 23.00
Busheling, No. 1, Pittsburgh	32.00
Busheling, No. 1, Cincinnati	25.00 to 25.50
Busheling, No. 1, Chgo.	29.00 to 29.50
Busheling, No. 2, Chgo.	19.00 to 20.00
Busheling, No. 1, St. Louis	28.00 to 28.50
Cast borings, New York	16.50 to 17.50
Cast borings, eastern Pa.	19.00
Cast borings, Buffalo	18.00 to 19.00
Cast, borings, Cleveland	18.25 to 18.50
Cast borings, Cincinnati	15.50 to 16.00
Cast borings, Pittsburgh	19.00
Cast borings, Birmingham	12.00 to 12.50
Cast borings, Chgo.	17.75 to 18.25
Cast borings, St. Louis	16.50 to 17.00
City wrought, long, N. Y.	31.00
Cut forge, Chgo.	31.00 to 31.50
Forge flashings, small, Cleve.	27.00 to 27.50
Forge flashings, large, Cleve.	27.00 to 27.50
Forge No. 1, eastern Pa.	26.50 to 27.50
Grate bars, Buffalo	24.50 to 25.00
Grate bars, Cleveland	25.50 to 26.00
Grate bars, N. J. points	24.75
Iron axles, Pittsburgh	46.50
Iron axles, Cincinnati	43.50 to 44.00
Iron axles, Cleveland	46.50
Iron axles, Chicago	46.50
Iron axles, eastern Pa.	46.50
Iron axles, St. Louis	46.00 to 46.50
Iron axles, Buffalo	45.00 to 47.00
Iron rails, Chicago	39.00
Iron rails, Buffalo	36.00 to 37.00
Iron rails, Cincinnati	34.00 to 35.00
Iron rails, St. Louis	37.00 to 37.50
Iron rails, Cleveland	34.00
Machine turnings, Cincinnati	16.00 to 16.50
Machine turnings, Cleve.	17.00 to 17.75
Machine turnings, Buffalo	17.00 to 17.50
Machine turnings, N. Y.	16.00 to 16.50
Machine turnings, Pitts.	18.00 to 19.00
Machine turnings, east. Pa.	19.00
Machine turnings, Birming.	16.50 to 17.00
Machine turnings, Chicago	17.75 to 18.25
Machine shop turnings, St. L.	17.50 to 18.00
Pipes and flues, Cleveland	24.50 to 25.50
Pipes and flues, Chicago	26.50 to 27.00
Pipes and flues, St. Louis	26.25 to 26.75
R. R. mch. cast, No. 1, Buff.	34.00
R. R. wrgt. No. 1, Buffalo	34.00
R. R. wrgt., No. 1, east Pa.	34.00
Railroad wrgt., No. 1 Cinci.	33.50 to 34.00
Railroad wrgt., No. 1, Cleve.	34.00
R. R. wrought, No. 1, Pitts.	34.00
Railroad wrgt., No. 2, Chgo.	31.00 to 31.50
Railroad wr'ght, No. 1, Chgo.	33.50 to 34.00
R. R. wrgt. No. 1, Birming.	24.00 to 25.50
No. 1 yard wrought East Pa.	33.00
No. 1 busheling wrgt., E. Pa.	31.00
Sheet wrought, Pittsburgh	34.00
Railroad wrgt., No. 1, St. L.	33.00 to 35.50
Railroad wrgt., No. 2	32.00 to 32.50
Wrought pipe, Buffalo	27.00 to 28.00
Wrought pipe, eastern Pa.	33.00
Wrought pipe, ungraded, eastern Pa.	29.00

IRON OR STEEL WORKS USE

Axle turnings, Cleveland	$24.00
Axle turnings, Buffalo	24.00
Heavy axle turn'gs, E. Pa.	24.00
Heavy axle turnings, Pitts.	24.00
Shafting, New York	35.50
Shafting, eastern Pa.	39.00
Steel car axles, Pittsburgh	46.50
Steel car axles, Birmingham	30.00 to 32.00
Steel car axles, New York	43.00
Steel car axles, Buffalo	44.00 to 46.00
Steel car axles, Cleveland	44.00
Steel car axles, eastern Pa.	46.50
Steel car axles, Chgo.	46.50
Shafting, St. Louis	36.50 to 37.00
Steel car axles, St. Louis	46.00 to 46.50

IRON FOUNDRY USE

Car wheels, (iron), Pitts.	$29.00
Car wheels, (steel), Pitts.	34.00 to 35.00
Car wheels, eastern Pa.	29.00
Car wheels, Buffalo	29.00
Car wheels, Chicago	29.00
Car wheels, St. Louis	28.50 to 29.00
Car wheels, Birmingham	25.00 to 26.50
Car wheels, Cleveland	30.00
Tram car wheels, Birming.	21.50 to 24.00
Cast, No. 1, Birmingham	22.50 to 23.50
Cast, No. 1, cupola east. Pa.	34.00
Cast No. 1, Cleveland	31.00 to 31.50
Cast, No. 1, Cincinnati	31.50 to 32.00
Cast, 1, heavy, N. J. points	32.25 to 32.75
Cast, 1, machy., N. J. points	32.50 to 32.75
Cast, No. 1, Chicago	30.50 to 31.00
Cast, No. 1, Pittsburgh	32.50 to 33.00
Cast, No. 1, St. Louis	26.75 to 27.25
Malleable, Cincinnati	30.00 to 34.00
Malleable, Cleveland	30.00 to 34.00
Malleable, Buffalo	29.00 to 34.00
Malleable, Pittsburgh	33.00 to 34.00
Malleable, east. Pa.	29.00
Malleable, cupola, East Pa.	33.00
Malleable railroad, Chgo.	32.00 to 33.00
Malleable, agricultural, Chgo.	31.75 to 32.25
Malleable railroad, St. Louis	28.50 to 29.00
Malleable agricultural, St. L.	27.25 to 27.75

MISCELLANEOUS USES

Boiler punchings, Chgo.	35.00 to 35.50
Reroll. rails, 5 ft. & ov., Pitts.	34.00
Reroll. rails, 5 ft. & ov., Chgo.	34.00
Reroll. rails, 5 ft. & ov., E. Pa.	34.00
Reroll. rails, 5 ft. & ov., St. L.	33.50 to 34.00
Reroll. rails, 5 ft. or over, Cleve.	34.00
Rerolling rails, long, Birm.	37.50 to 38.50
Locomotive tires, Chgo.	43.00 to 44.00
Locomotive tires, St. Louis	40.50 to 41.00